JULY 1, 1952

MODERN MEDICINE

The Journal of Diagnosis and Treatment

Dr. I. E. M. Thomson *(see page 11)* *Table of contents page 11*

Not three...but Four

Four factors are now recognized in the treatment of peptic ulcer...

1. ***Neutralizing hyperacidity.*** KOLANTYL includes a superior antacid combination (magnesium oxide and aluminum hydroxide, also a specific antipeptic) for two-way, balanced antacid activity.

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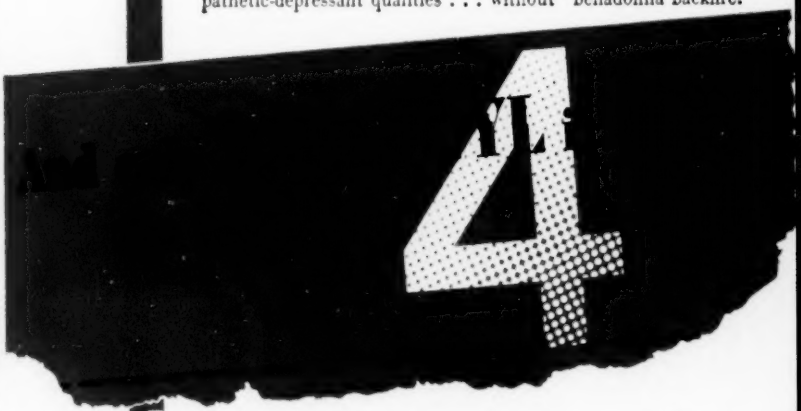

4. ***Inactivation of lysozyme*** . . . with a proven antilysozyme, *sodium lauryl sulfate*. Laboratory research[1,2,3] and clinical results[4] indicate that the enzyme lysozyme is one of the etiologic agents of peptic ulcer. By inhibiting or inactivating lysozyme, KOLANTYL—and *only* KOLANTYL—provides the important 4th factor toward more complete control of peptic ulcer.

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1. Meyer, K. et al. Am. J. Med. 5:462,1948. 2. Wang, K. J. and Crossman, M. I. Am. J. Phys. 155:476,1948. 3. Crace, W. J. Am. J. Med. Sc. 217:241,1949.
4. Hufford, A. R. Rev. of Gastroenterology, 18:568, 1951.

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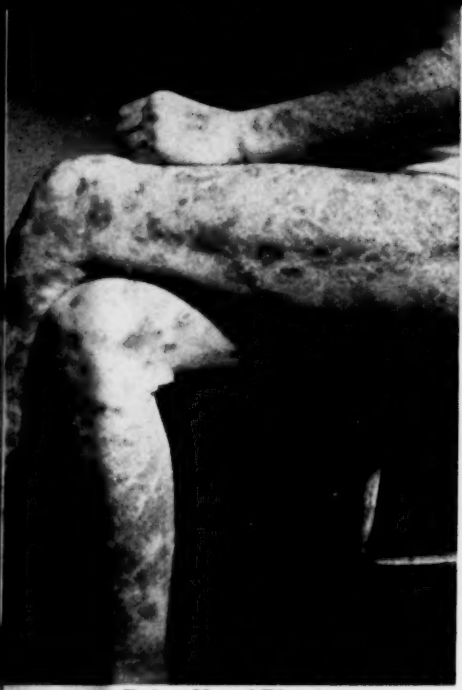
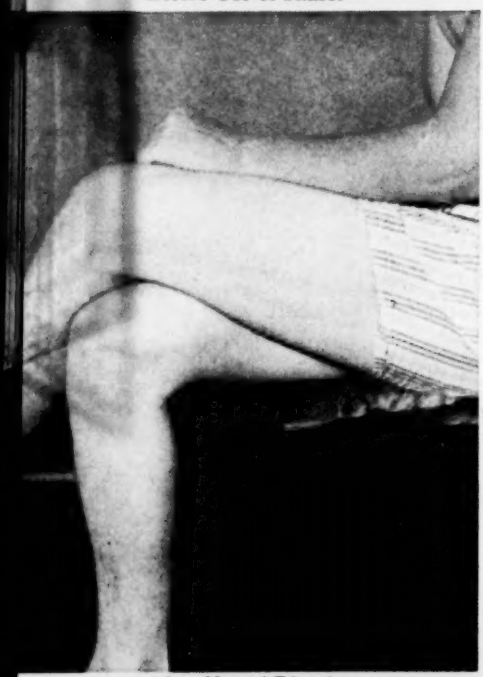


Before Use of Riasol



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THE JOURNAL OF DIAGNOSIS AND TREATMENT

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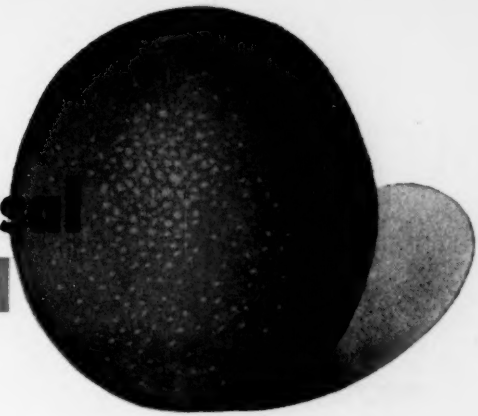

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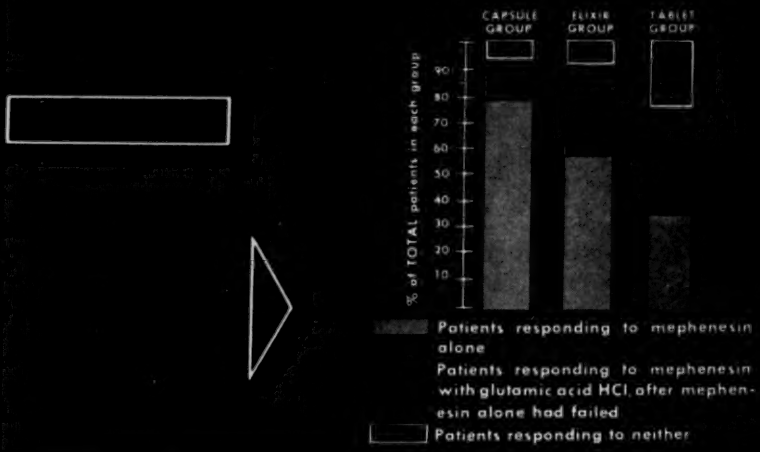

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SUPPLIED:

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TABLE *of* CONTENTS

for

July 1

1952

Modern Medicine

Vol. 20, No. 13

THE MAN ON THE COVER is Dr. James E. M. Thomson of Lincoln, Chief of the Department of Bone and Joint Surgery at Bryan Memorial Hospital, Chief of the Department of Orthopaedic Surgery at Lincoln General Hospital, and Chief of the Orthopaedic Department of the University of Nebraska, Lincoln. Recipient of numerous honors from American medical organizations, Dr. Thomson also has been awarded the Medal of Charles University, Czechoslovakia, the Bronze Plaque of the Slovakian Medical Association, and the Order of the White Lion. A fellow of the American College of Surgeons and International College of Surgeons, Dr. Thomson is an honorary member of the Peruvian Society of Orthopaedic Surgery and Traumatology and Czechoslovakian Orthopaedic Association. He is past president of the American Academy of Orthopaedic Surgeons and the Clinical Orthopaedic Society and a member of the International Association of Orthopaedic Surgeons and Board of Governors of the American Medical Association. The report on page 91, "Prosthesis for Femoral Head," is based on an article by Dr. Thomson which appeared originally in the *Journal of Bone and Joint Surgery*.

Contents for July 1 1952

CONTINUED

Contents for July 1 1952

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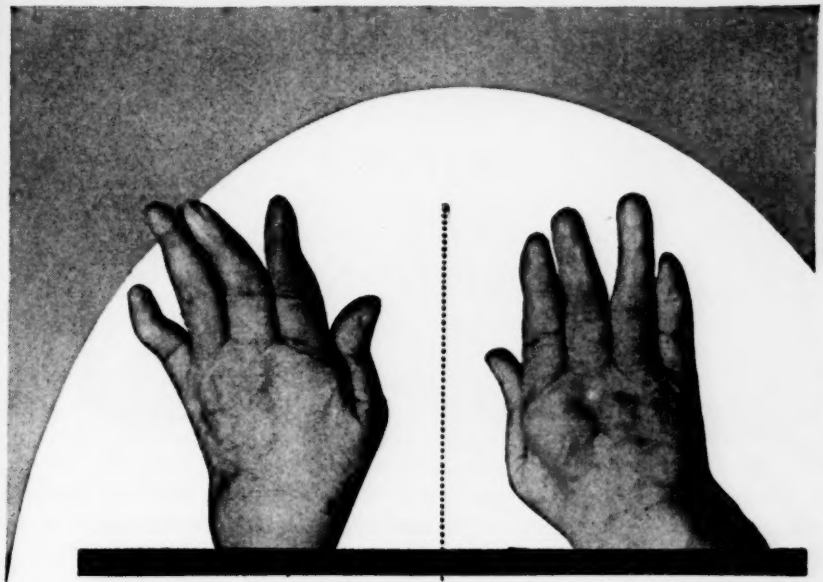

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LETTER FROM THE EDITOR

Dear Reader:

Have you ever said, "I'd like to do this or that but I just don't have the time?" Most of us have. Busyness is the curse of the age. Physicians in particular are hard hit.

But even the most harrassed practitioners do get unexpected bits of free time. Mostly the moments are unpredictable and cannot be planned. Too, the free periods are short. But, in total, they amount to quite a stretch. I suppose that most of us find fifteen or twenty minutes unspoken for during an average day. Fifteen minutes a day, five days a week, mounts up. Even allowing for a two-week's vacation, which you should take, fifteen minutes a day gives you more than sixty hours a year, the equivalent of eight full eight-hour days.

Now you can't go fishing or play much golf in fifteen minutes. You can utilize these fragments of time, however, to keep up with current medical thought. Keep *Modern Medicine* handy, on your desk or in your jacket pocket. The free moments at odd times will more than suffice for you to read it from cover to cover. You will be surprised at how easy it is to keep *au courant,* just by taking advantage of unexpected breaks through the day.

For our part, we make every endeavor to have each issue of *Modern Medicine* adapted to your reading habits. Articles are kept short and to the point. Each is complete in itself. And each is written in a fact-packed lucid style that gives information to the man who must read as he runs. And when you have completed an issue you have achieved a synoptic view of the best in current medical thought.

If you are not already doing it, keep *Modern Medicine* handy and make the few free minutes during the day pay dividends.

Walter C. Alvarez

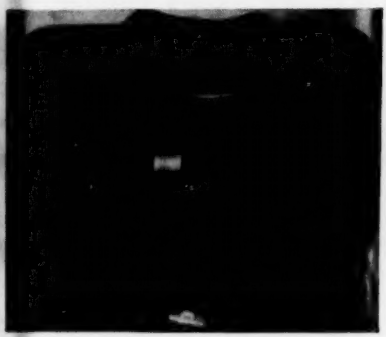
EDITOR-IN-CHIEF

Correspondence

Communications from the readers of MODERN MEDICINE *are always welcome. Address communications to The Editors of* MODERN MEDICINE, *84 South 10th St., Minneapolis 3, Minn.*

Stethoscope Pocket

TO THE EDITORS: After years of having one stethoscope tangle with another or with the BP apparatus, the problem was solved by inserting a strip of leather across an end of a standard medical bag (see illustration). A deep pocket is provided into which a stethoscope may be dropped quickly.



R. S. SRIGLEY, M.D.
Hollis, Okla.

Features Invaluable

TO THE EDITORS: I have found *Modern Medicine* most informative and its special features invaluable.

ALBIN F. URANKAR, M.D.
Euclid, Ohio

Estrogens and Cancer

TO THE EDITORS: In the March 1, 1952 number of *Modern Medicine* (p. 69) there was an editorial by Dr. Walter C. Alvarez entitled "Do Estrogens Produce Cancer in Women?"

It was certainly an excellent editorial. I lent the copy to a friend but when he returned the magazine the article had been torn out. I don't blame him, as it was worth saving, but it deprives me of an addition to my collection of articles from *Modern Medicine.* I would appreciate either another copy of the magazine or a reprint of that very helpful article.

JOSEPH I. A. THOMPSON, M.D.
Margate City, N. J.

Aluminum Not Brittle

TO THE EDITORS: The last sentence of the article "Wire for Aortic Aneurysm" *(Modern Medicine,* Mar. 15, 1952, p. 131) states "Drs. Peter Stone and Jere W. Lord, Jr., of New York University, New York City, after comparing the materials in aortas of 30 dogs, also found the alloy [magnesium wire] more satisfactory

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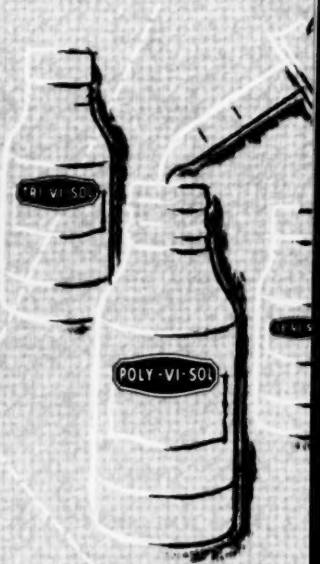

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than pure aluminum, which is extremely brittle."

No doubt many physicians, like this writer, have made thorough use of the extreme ductility of pure aluminum wire. The statement relative to its being brittle consequently clashed so forcibly in my mind that I sent a written inquiry to the Aluminum Company of America. Sorry, but pure aluminum is not brittle, although it can be tempered to a state of hardness.

WILLIAM HARVEY THALER, M.D.
Long Beach, Calif.

Benefits from Electroshock

TO THE EDITORS: I have read with a great deal of interest the various reactions to Dr. Alvarez' editorial on electroshock therapy and discussion of the conditions in which such treatment has proved to be of benefit (*Modern Medicine*, Jan. 1, 1952, p. 67, and Apr. 15, 1952, p. 18).

As senior physician at the Dan-

"Isn't this carrying modesty a little too far?"

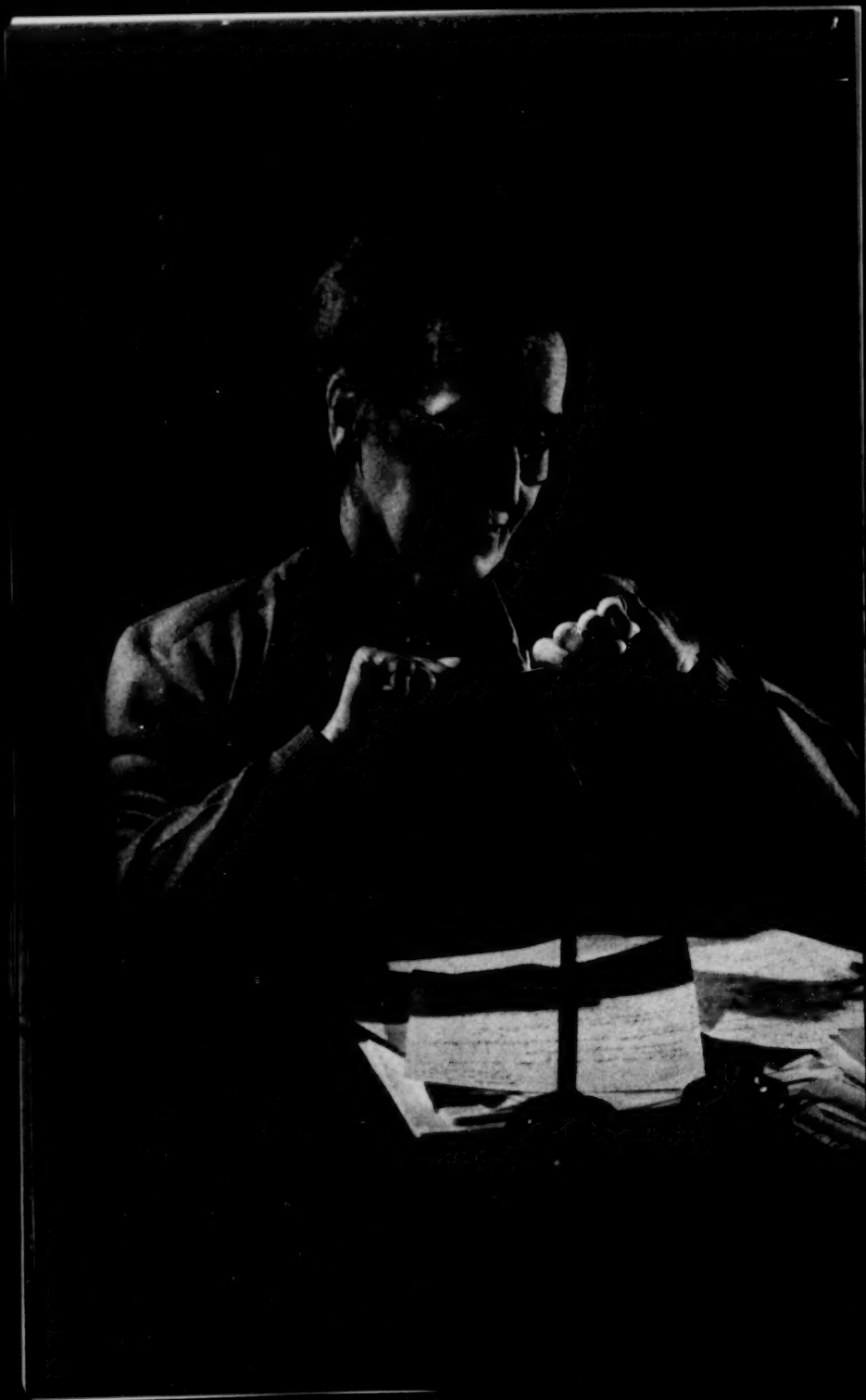
ville State Hospital, Pa., I conducted this form of treatment for many mental illnesses. One disease in which we secured marvelous results as an adjunct to the regular clinic treatments of syphilitic meningoencephalitis was paresis.

For many years we supplemented the regular malaria fever treatment of paresis by a course of electroshock of from 10 to 12 reactions. Most patients improved; they became less disturbed, more cooperative, and eventually were furloughed much sooner than with the routine forms of treatment. All patients became much easier to care for, even when not well enough to go home. Many fed and dressed themselves and showed not only mental but also physical improvement, with weight gain and better personal habits.

I must agree that adequate nursing personnel must be on hand to hold the patient on the table during the reaction to avoid fractures or dislocations. We had 3 nurses on each side of the table—1 at the shoulder, 1 at the hips, and 1 at the legs; 1 holds the mouth gag, and another the electrodes. The doctor in charge controlled the apparatus and had hypodermic stimulants available in case of emergency. Artificial respiration had to be resorted to on several occasions.

We found that some patients responded to daily, others to semi-

(Continued on page 26)



weekly treatments. All revealed some degree of improvement.

In spite of what has been written, most patients apparently do not regard this form of treatment with apprehension or anxiety.

We at Danville had a release signed by the nearest responsible relative before instituting treatment. I cannot agree with those who limit electroshock therapy to selected cases, either from a diagnostic standard or a physical standard—with, of course, extreme limitations as to age and bodily conditions. We have used electroshock in old deteriorated schizophrenic patients who were tube-fed for years. One patient had hundreds of shock treatments before he began eating voluntarily, and no appreciable damage was done.

Paranoid praecox appeared to show the least beneficial changes; manic depression in the depressed phase naturally showed the quickest response. When properly given and in sufficient amounts we found the therapy of benefit in almost all the forms of mental illness. Psychotherapy, reeducation, encouragement, forced feeding, total push, occupational therapy—all, of course, play a part in the treatment of mental illnesses, but after almost fifty years of handling such patients I feel that no patient should be considered incurable until he or she has been given the benefit of electroshock therapy if other treatment has not brought improvement.

Not all cases will recover. However, the prognosis is brighter than before shock therapy was instituted.

CHARLES L. ZIMMERMAN, M.D.
Harrisburg, Pa.

"When I asked you to bring in a specimen of your water, I didn't mean from your well!"

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Baldwinsville, N. Y.

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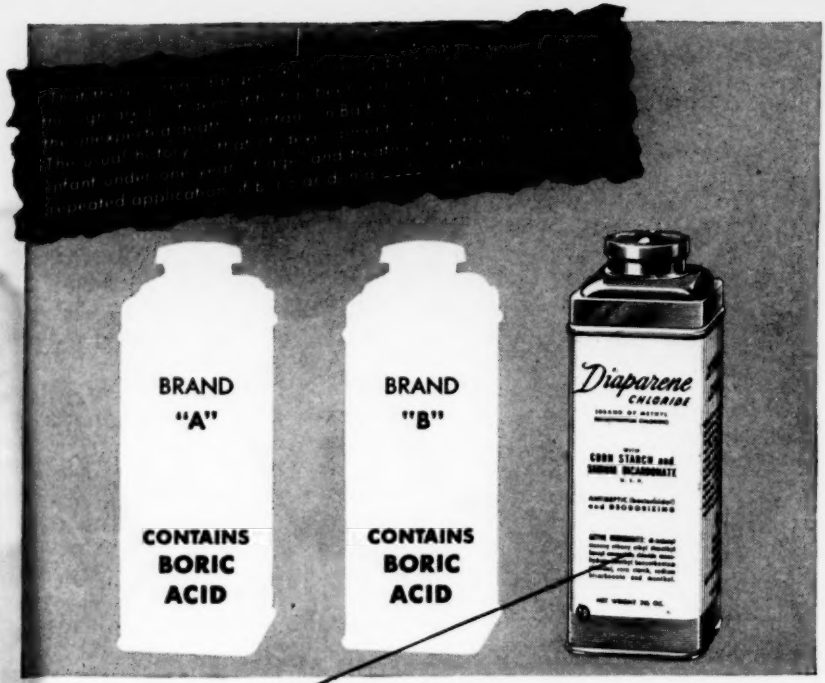

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1. Fisher, R. S. "Notes from The Office of the Chief Medical Examiner," Baltimore, Md., April, 1951.
2. Benson, R. A., *et al.*: "The Treatment of Ammonia Dermatitis with Diaparene," J. Ped. 34:1-49, Jan., 1949.
3. Niedelman, M. L., *et al.*: "Ammonia Dermatitis. Treatment with Diaparene Chloride Ointment," J. Ped. 37:5-762, Nov., 1950.

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Questions & Answers

All questions received will be answered by letter directed to the petitioner; questions chosen for publication will appear with the physician's name deleted. Address all inquiries to the Editorial Department, MODERN MEDICINE, *84 South Tenth Street, Minneapolis 3, Minnesota.*

QUESTION: The following metals are to be used in an acid dip (HBF_4-10% solution) in an electric plating process: Ni $(FB_4)_2$ at pH_3, 50% concentration and Fe $(FB_4)_2$ at pH_3, 25% concentration. What data are available on the toxicity of fumes, skin irritation, and absorption of these metals? What precautions should be taken in a closed room for protection during use of these compounds?

M.D., New York

ANWER: *By Consultant in Pharmacology.* Fluoboric acid and its salts, like all soluble fluorine compounds, are poisonous. Ingestion of these compounds and inhalation of their vapors or dusts must be avoided. While the acid and its salts are much less corrosive than hydrofluoric acid, the same precautions should be observed as when working with the common acids.

QUESTION: A patient who lived in China for many years has stools infested with *Clonorchis sinensis* and is troubled with episodes of abdominal pain, diarrhea, anorexia, and loss of weight. The laboratory tests indicate moderate liver damage. Gentian violet by mouth and magnesium sulfate duodenal drainage failed to eliminate the ova from the stool. The use of Fuadin seems potentially dangerous. What treatment would you suggest?

M.D., New York

ANSWER: *By Consultant in Parasitology.* No effective therapy for *Clonorchis* infections is known. Intravenous tartar emetic is more likely to produce reactions than Fuadin. Intramuscular injections of 1.5 cc. of Fuadin may be given the first day, 3.5 cc. the third day, and 5 cc. on alternate days for ten injections.

If the five-day intensive treatment with gentian violet seems desirable, 32 mg. (½-gr. one and one-half hour enteric-coated) tablets should be administered three times a day. The dose is increased by 1 tablet daily until 5 are taken.

Chloroquine has been used empirically—2 tablets morning and evening for two days, then 1 tablet morning and evening for eighteen days.

Light infections that have not had time to develop fibrosis probably respond best to treatment.

QUESTION: Can you suggest any drug other than phenobarbital for a patient with familial tremor of the hands?

M.D., Illinois

ANSWER: *By Consultant in Neurology.* No specific treatment exists for this type of disturbance. Sometimes 2 mg. of Artane two to three times a day is helpful. Otherwise, mild sedation is still the best treatment.

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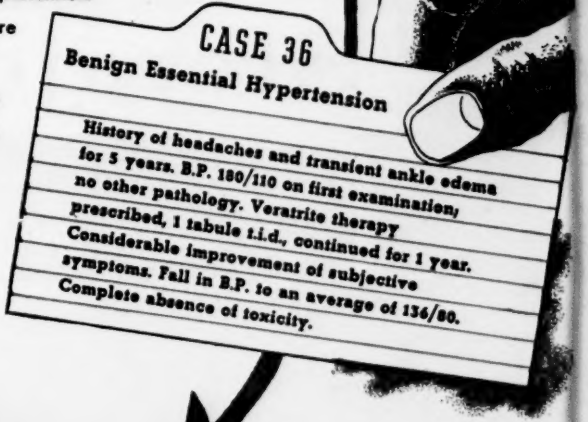
No other hypotensive product combines such high efficacy with so much safety as Veratrite in the treatment of mild or moderate hypertension. The fall in blood pressure is gradual and prolonged. Subjectively, the patient's well-being is restored by relieving headache, dizziness and easy fatigue.



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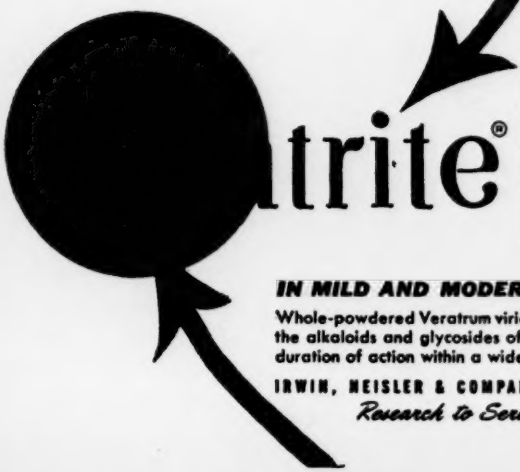
History of headaches and transient ankle edema for 5 years. B.P. 180/110 on first examination; no other pathology. Veratrite therapy prescribed, 1 tabule t.i.d., continued for 1 year. Considerable improvement of subjective symptoms. Fall in B.P. to an average of 136/80. Complete absence of toxicity.



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Sodium Nitrite..... 1 grain
Phenobarbital..... ¼ grain

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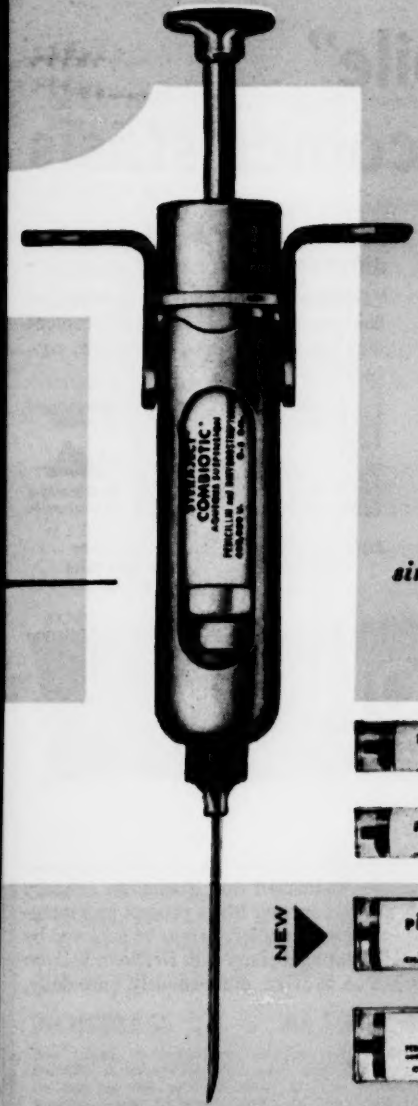

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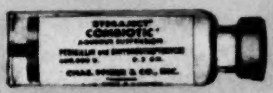

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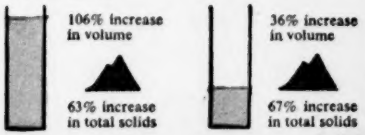
Thin, free-flowing bile in copious amounts as produced by *hydro*choleresis with *Decholin*.

what does "therapeutic bile" do?

Overcomes stasis in chronic cholecystitis and noncalculous cholangitis by flushing thickened bile, mucus plugs and debris from the biliary tract.

how does "therapeutic bile" differ from other bile?

"THERAPEUTIC BILE" is higher in fluid content and lower in solid content than bile produced by choleretics, e.g., ox bile salts.



Hydro*choleretic: *Decholin

Choleretic: Ox bile salts

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(brand of dehydrocholic acid)

how is "therapeutic bile" obtained?

"THERAPEUTIC BILE" is obtained by adequate dosage of *Decholin* and *Decholin Sodium*. Most patients require one or two tablets t.i.d. for four to six weeks. Prescription of 100 tablets is recommended for maximum efficacy and economy. More prompt and intensive *hydro*choleresis may be achieved by initiating therapy with *Decholin Sodium* 5 cc. to 10 cc. intravenously, once daily.

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Decholin Sodium (brand of sodium dehydrocholate) 20% aqueous solution, ampuls of 3 cc., 5 cc. and 10 cc.

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QUESTION: Does 50 μg. of vitamin B_{12} given intramuscularly have any effect on the basal metabolic rate? Does this vitamin occasionally cause a rise in temperature?

M.D., New York

ANSWER: *By Consultant in Pharmacology.* Vitamin B_{12} has no effect on the basal metabolic rate. An increase in body temperature at the time of injection is probably caused by the presence of undesirable pyrogens.

QUESTION: What treatment can be given to Rh-negative patients to prevent the formation of antibodies? How is the Hr-factor patient handled?

M.D., New Mexico

ANSWER: *By Consultant in Obstetrics.* No treatment is available which will eliminate antibodies from the maternal blood or alter the prenatal effects of antibodies on the fetus. Rh hapten, temporarily available from commercial sources, was used without much benefit and has been discontinued by most investigators. Synkamin and a variety of other medications have not been satisfactory. The suggestion has been made that progesterone be used during the entire pregnancy on the theory that the uterus will be kept more quiet and that chances will be less for fetal blood to enter the maternal circulation causing sensitivity. Patients with the Hr factor are extremely rare but should be handled similarly to Rh-negative patients.

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woven with live rubber thread

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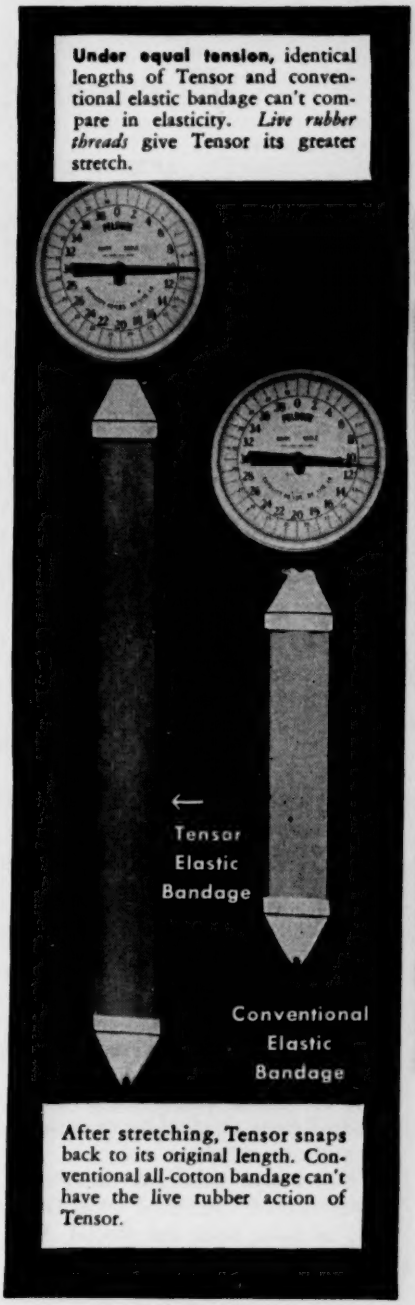

Forensic Medicine

ARTHUR L. H. STREET, LL.B.

Prepared especially for Modern Medicine

PROBLEM: [1] Does a statute providing for compulsory isolation and hospitalization of persons with tuberculosis violate the right of religious freedom of those who regard such measures as irreligious? [2] As against habeas corpus proceedings, will detention be continued, subject to the patient's right to apply for release when he can show, by examination, scientific tests, and otherwise, that his disease has been so arrested that he is no longer a menace to those with whom he will come in contact?

COURT'S ANSWERS: [1] No. [2] Yes.

This case was decided by the Florida Supreme Court, Division B (57 So. 2d 648).

PROBLEM: A manufacturing company maintained a medical staff on a part-time basis, the physicians also being engaged in private practice. They were free to leave the plant in emergencies arising in that practice, which yielded most of their earnings. Were the doctors and the company subject to the provisions of the federal Social Security Act?

COURT'S ANSWER: No.

A manufacturer sued to compel the government to refund overpayment of federal employment taxes that had been exacted by an internal revenue collector.

Chief Judge Jones of the U. S. District Court, Northern Ohio District, decided that the Social Security Act was not intended to include doctors and other professional men serving industrial employers on a part-time basis and engaging in independent professions.

The court said that the doctors were independent contractors, not employees, and the fact that 2 of the physicians had taken out Social Security cards and that some received turkeys at Christmas time from the company did not prove that the physicians were its employees (103 Fed. Supp. 7).

PROBLEM: Unless otherwise agreed, is a doctor entitled to retain roentgen negatives he has made or caused to be made as a basis for treating a patient, even if the patient or other person has paid the cost?

COURT'S ANSWER: Yes.

In a case decided by the Michigan Supreme Court, a doctor sued an employer for services rendered to an injured employee. The employer unsuccessfully defended on the ground that the doctor had refused to deliver to the employer the roentgen negatives for use by other physicians who had also treated the injured man. The doctor offered to permit the physicians to inspect the negatives in his clinic.

The court said that, unless there is contrary agreement, negatives belong to the doctor who made

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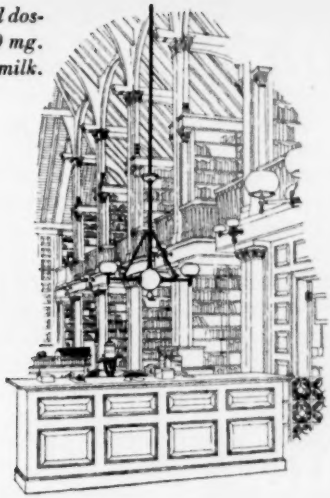

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Aureomycin appears rapidly in the tissues of the ear, nose and accessory sinuses, and in the cerebrospinal fluid.

Aureomycin, when given intravenously, attains maximum concentrations in the plasma within 5 minutes.

Aureomycin exhibits little tendency to favor the development of bacterial resistance.

Aureomycin has been reported to be effective against susceptible organisms in the following conditions frequently seen by otolaryngologists:

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Mastoiditis • Pharyngitis • Sinusitis • Tonsillitis

Throughout the world, as in the United States, aureomycin is recognized as a broad-spectrum antibiotic of established effectiveness.

Capsules: 50 mg.—Bottles of 25 and 100; 250 mg.—Bottles of 16 and 100.
Ophthalmic: Vials of 25 mg. with dropper; solution prepared by adding 5 cc. of distilled water.

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them or had them made, constituting "an important part of his clinical record." In the aggregate, they "preserve much of value incident to a physician's or surgeon's experience." They are as much a part of the case history as any other record and differ little if at all from microscopic slides of tissue made in diagnosis or treatment which could not be said to belong to the patient. The doctor is also entitled to retain the negatives as vital evidence against possible charge of malpractice (262 N. W. 296).

In 1948, U. S. District Judge Rodney of Delaware adopted the reasoning of the court in the Michigan case, in deciding that defendant in a personal injury suit was not entitled to a court order compelling plaintiff to produce roentgenograms in the possession of his doctor. But the judge explicitly left undecided "rights as between a medical specialist who actually took the photographs and a medical diagnostician at whose special instance and for whose information the photographs were taken" (80 Fed. Supp. 107, 110).

In 1950, the California District Court of Appeal, Second District, mentioned that the judge of a lower court had declared it to be common knowledge that radiograph films "are the property of the laboratory producing them." But the higher court said that there was no evidence to prove that radiograms

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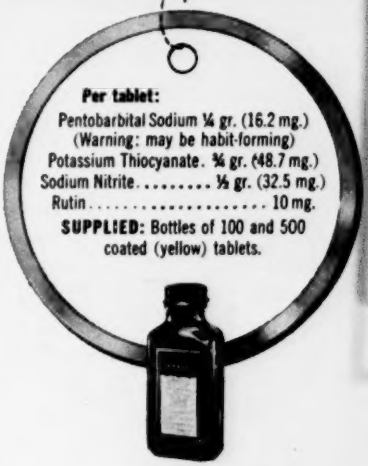
1. Parsonnet, A. E., et al.: J. M. Soc. New Jersey 47: 504, 1950.



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at all times belonged to plaintiff, operator of a lay laboratory. In that case the question of ownership was involved only in determining the validity of a sales tax on radiograph films. It was decided that the tax was invalid as unjustly discriminating against lay laboratories in favor of medical and hospital laboratories (222 Pac. 2d 898).

A note at 49 Harvard Law Review (1936) 490 observes that the Michigan decision followed the reasoning of a lower Michigan court, to the effect that a patient buys from his doctor "skill and treatment rather than the films" (19 Radiology 388, 391). In 1920, the Radiological Society of North America resolved that roentgenogram negatives should be the property of the doctor or hospital making them.

Because custom and usage always play an important part in determining legal rights, when not opposed to statutory provisions or explicit agreement, customary practice in particular communities with reference to ownership of negatives affords a fairly dependable basis for forecasting what courts in those communities would be apt to decide about ownership.

¶ As far as judicial precedents go, the fact that no court seems to have yet disapproved the decision rendered by the Michigan Supreme Court indicates improbability that contrary decisions will be forthcoming.—A.L.H.S.

Isatin

In 1950, a Harrower research team isolated and identified a diphenylisatin as the principal laxative component of prunes. A synthetic analogue of the isatin identified in prunes was then evaluated [illegible] and pharmacologically. Like nature's isatin, it was found to supplement the colloidal and emollient effects of prunes by gently stimulating peristalsis, and did so without any undesirable side effects.

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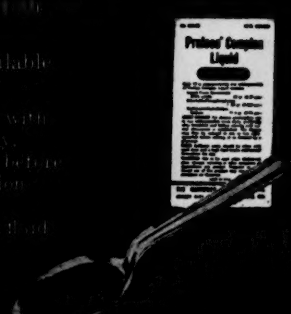
the new liquid form of [illegible] activated [illegible] bulk, combines Isatin with [illegible] and sodium [illegible] for the safe treatment of functional constipation.

PRULOSE COMPLEX Liquid [illegible] for all patients from pediatric to geriatric.

PRULOSE COMPLEX Liquid is available in 12 oz. bottles.

DOSAGE: 1 or 2 tablespoonfuls with a full glass of water, twice daily, preferably after breakfast and before retiring, until normal elimination is established. The dosage may then be reduced [illegible]



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Washington Letter

Doctors Join Self-employed in 'Pension' Effort

LIKE old soldiers, old doctors fade away. But, unlike old soldiers, they have no government pension to make the fading years pleasant.

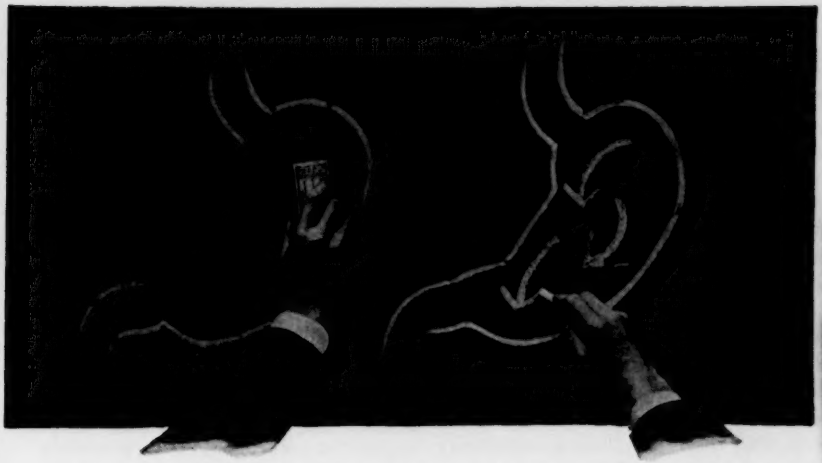
This situation is not new. The only new element is that doctors now have joined with a few million other self-employed Americans to see if they can't get Congress to help them provide for their own fading years. They want Congress to enact legislation permitting them to defer payment of federal income taxes on a portion of their incomes during their peak earning years. The money put into foundations, bank trusts, or government bonds, could be paid out only under three conditions: [1] death of the beneficiary, in which case the money would go to his estate, [2] permanent disability, in which case the money would start flowing back to the doctor in monthly payments, [3] retirement at a specified age, with the money returned according to a prearranged schedule.

There would be a saving in income taxes—but no total "escape" of taxes. When the money was paid back, either to the beneficiary or his estate, the usual income taxes would be paid. In most cases the total would be less than the government would have collected in the peak income period.

In their efforts to get legislative action, physicians have coordinated their campaign with that of lawyers, dentists, farmers, accountants, architects, engineers, artists, designers, veterinarians, chemists, and athletes. The witnesses at a hearing of the House Ways and Means Committee are an example of the cross section. The first witness was a nationally prominent attorney, George Roberts. Later in the day a New York City disc jockey made his appeal. Joe Louis was cited as an example of an athlete who is a victim of the present system of taxation.

"My face gives me an inferiority complex."

Actually, the physicians



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and those associated with them in the campaign are not asking for special treatment. They are merely asking that they, as self-employers, be allowed the same income-tax allowance privileges as corporations. Corporations now may pay a certain amount into a pension fund for employees without first paying taxes on the money; the money involved does not show up on the pay check, but it is recognized as an inducement to employment. Physicians and other self-employed persons who wish to purchase annuities or pensions must first pay income tax on the money.

As written, two identical bills—Reed-Keogh—would allow self-employed persons to set aside 10% of their incomes, free of federal income taxes, for purchase of pension programs. In exceptional cases, this would allow for accumulation of retirement benefits of several thousand dollars a month.

However, the American Medical Association's expert in this field, Frank Dickinson, Ph.D., would limit the accumulation of retirement funds. He also proposes to make it possible for a physician now approaching the retirement age to build up a realistic pension in fewer years.

Dr. Dickinson also, after use of charts and slide rules, estimates that the average pension of a physician under the bills would be nowhere near the $1,000 per month mark, but something closer to $200 per month.

A third bill, the Davis bill, would make use of special U. S. bonds. Committee members indicated interest in the suggestions, but appeared in no hurry to report out a bill. They ask these questions:

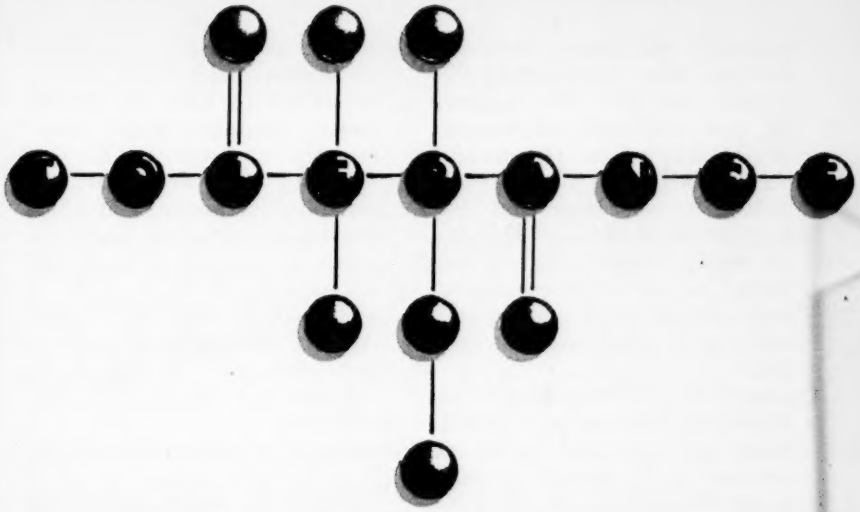
- How much will it cost the government in lost revenue? Dr. Dickinson estimates that in five years the loss in taxable revenue would not exceed half a billion dollars, compared with the estimated three billion tax-free money corporations now put in pension funds.
- Who will be eligible? Particularly, should salaried persons be permitted to add tax-free dollars to money paid by their corporations for pensions?
- Why not permit insurance companies to sell annuities, providing they meet requirements of the bill? Because of state laws, this would be impossible for the present.
- Should not the medical profession first bring itself under Federal Social Security protection as a "floor" for pensions? Physicians, dentists, attorneys, and a few other professions successfully opposed inclusion when the Social Security law coverage was extended in 1950.

Action is not likely to be completed this session on any of the self-employed pension bills.

Washington Notes

Fair trade legislation faces a race with time. Last year the Supreme Court ruled that mandatory fair trade prices on interstate commerce were not constitutional, thereby setting off a series of price-cutting waves in a number of cities, particularly in drug items. A bill returning this police power to the states has passed the House and is before the Senate. However, adjournment may find it still tied up.

U. S. Public Health Service medical officers, along with all military



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personnel, will benefit from the new pay raise. It amounts to 4% in basic pay, plus 14% in housing and subsistence allowances. Arguments before House and Senate committees were pressed mainly by spokesmen for the military departments. PHS did not testify. The increase does not extend to all PHS employees, only commissioned officers; this takes in all physicians and dentists.

Chairman Paul B. Magnuson of the President's Commission on Health Needs of the Nation is taking off two months this summer to make a trip to England for the joint meetings of British and American Orthopedic Associations. In his absence, the commission staff will continue its high-speed collation of material already assembled, under direction of the vice-chairman, Chester I. Barnard, president of the Rockefeller Foundation. Next important series of panel discussions, the subject of which will be prepayment health plans, is scheduled for September.

International Labor Organization, already under criticism from some sections of American medicine, will be subject to more as a result of its sessions in Geneva this month. Some ILO leaders hope to improve benefits for working mothers through treaties which, when approved, have the effect of national laws. ILO critics maintain that progress on such matters should remain a state or national, not an international, objective.

Any large and loosely run medical foundation might look forward to difficulties with the special House committee under chairmanship of Rep. E. E. Cox (D., Ga.). Ostensibly it will be searching for instances in which tax-free foundations have engaged in subversive or un-American activities. However, under its grant of authority, the committee may investigate any foundations that may be engaging in activities not specified in their charters.

Doctors in the military services and U. S. Public Health Service will continue to receive their $100 per month special pay unless something unexpected happens. Thanks should go to Sen. Lester Hunt (D., Wyo.), a dentist, who separated this issue from other questions of bonus or hazard pay—flying, submarine duty—and got his bill reported out by the Senate Armed Services Committee. At this writing, prospects are that both Senate and House will pass the measure. If they don't, the special pay stops on September 1.

Senate has confirmed reappointment for eight "short-term" members of the National Science Foundation Board. Staggered short terms were provided at the start of the program, but eventually all appointments and reappointments will be for the standard six years. Included in the first eight members to be reappointed are the Board's three physicians, Drs. Sophie D. Aberle, University of New Mexico;

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Usual Dosage: One or two teaspoonfuls (5-10 cc.) three times daily immediately **after** meals.

Clinical Samples available on request.

1. Myersen, A.: J. Nerv. and Ment. Dis. *105*:598 (June) 1947.
2. Barnett, S. E.: Eye, Ear, Nose and Throat Monthly *29*:19 (January) 1950.
3. Schulte, J. W., Reif, E. C., Bacher, J. A. Jr., Lawrence, W. S. and Tainter, M. D.: J. Pharmacol. and Exper. Therap. *71*:62-74 (Jan.) 1941.
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5. Gelvin, E. P., and McGavack, T. H.: New York State J. Med. *49*:279 (Feb. 1) 1949.

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Gertie T. Cori, Washington University Medical School, St. Louis; and Robert F. Loeb, College of Physicians and Surgeons, Columbia.

Of the $2 million budget of Pan American Sanitary Bureau for the next fiscal year, the United States will be expected to provide $1.3 million, or 66%. The Bureau is World Health Organization's regional office for the western hemisphere.

Navy is taking special care to point out that reserves taking special courses on active duty time are not making themselves more liable for call to extended active duty. This is to counteract a feeling among some reserves that the safest thing is to have as little to do with the Navy as possible.

Names: *Dr. John C. Bugher* now is director of Atomic Energy Committee's Division of Biology and Medicine, succeeding *Dr. Shields Warren,* who ran the bureau from creation of AEC in 1947. . . . Attendants at the World Health Organization Geneva sessions included *Surg. Gen. Leonard Scheele* and *Dr. Melvin Casberg,* head of Defense Department's Armed Forces Medical Policy Council. . . . *Dr. Otis L. Anderson* takes the place of the late *Dr. Joseph W. Mountin* as Chief of PHS Bureau of State Services. . . . *Dr. Jens Nielsen,* Danish radium expert, is in the United States at the present time to lecture at Cornell University and do research at Memorial Center for Cancer and Allied Diseases, New York City.

Doctor to Doctor

Think of a gag that fits the illustration. For every issue a new gag is published and the author is sent $5. The July 1 winner is

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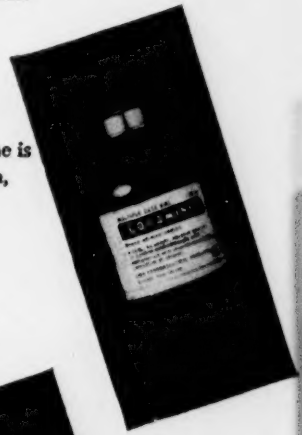

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1. Matlin, E.: Current Med. Dig. 19:23, 1952. 2. Krantz, J. C., Jr.: Current Med. Dig. 19:27, 1952.

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The Cerebral Blood Flow

and metabolism of the brain

A Modern Medicine Editorial

Especially today, when some neurosurgeons are blocking the stellate ganglion with the hope of helping the patient who has just suffered a stroke, it is good to find a review of present knowledge in regard to the blood flow through the brain and the rates at which this organ uses oxygen and sugar (Scheinberg, P., and Jayne, H. W. *Circulation* 5:225-236, 1952).

It is fortunate that in recent years, with the development of the nitrous oxide technic, physiologists have been able to measure in man whatever changes take place in blood flow through the brain, together with the resistance to flow in the intracranial blood vessels and changes in the metabolism of the brain substance.

The discovery has been made that the oxygen consumption of the brain remains unchanged in such conditions as hyperthyroidism, essential hypertension, schizophrenia, and even during the facial flushing that follows the giving of nicotinic acid. Oxygen consumption is not changed by the induction of fever, by the receiving of histamine, or by the intravenous injection of procaine.

Noteworthy is the fact that no alteration has been found in the circulation of the brain after blocking the stellate ganglion, even when this has been done on both sides. Neither has change been found in the resistance to blood flow within the skull, an observation which confirms the work of the several physiologists who, in the past, have concluded that the sympathetic nerves do not affect the caliber of the cerebral arteries.

The theory that a stellate ganglion block can help a man who has had a stroke was shaky from the start. If the man had had a hemorrhage, surely the opening up of his arteries could only do harm. If he had had an embolism, the plug could only be moved forward a little, and if he had had the usual thrombosis in some artery, dilating the artery for two or three hours could do him no permanent good.

It seems, then, that if after a stroke we could dilate the arteries of the brain, we would not give the patient much help. We could only hope to open temporarily the vessels around the blocked one. Now the evidence is that with a stellate block we cannot even do this.

It has been demonstrated that the breathing of CO_2 greatly increases the blood flow through the brain. Under these circumstances it would seem that those who want to treat a stroke actively had better not block the ganglion; they would do better to administer through a BLB mask a mixture of carbon dioxide, oxygen, and nitrogen.

WALTER C. ALVAREZ

Comminuted Communication

Occasionally one runs onto a gem of scientific English which serves a purpose—to show how one should never write. Here is an example:

"The present writer is indisposed to deny that he is unconvinced of the necessity of refusing to accept the infrequency of negative reactions as a not insuperable argument in disproof of the theory."

This clear-cut statement would be even more readable if it were in German!—W.C.A.

In traumatic and hemorrhagic shock, treatment is directed toward restoring the deficit in blood volume.

Nature and Treatment of Shock

DICKINSON W. RICHARDS, JR., M.D.
Columbia University, New York City

ARTERIAL transfusion of blood under pressure and use of plasma substitutes are the most important advances in therapy of traumatic shock.

A review of the subject by Dickinson W. Richards, Jr., M.D., was inspired by recent military events.

Chief causes of traumatic shock are crushing injuries, amputation, severe fractures or burns, wounds of the chest, abdomen, or extremities, and hemorrhage.

The patient is prostrated, though usually conscious, oriented, and restless. He is thirsty and perhaps in pain. Lips are pale, the skin is cold, moist, and at times cyanotic, the pulse thin and rapid.

The basic deficit is blood loss of 15 to 40%. Arteries in the extremities constrict, peripheral veins collapse, cardiac output may drop 50%, and arterial systolic pressure to 80 mm. of mercury or less.

Except with massive hemorrhage, the total syndrome develops only after several hours. As blood pressure falls, urine formation decreases, and renal failure may continue after recovery from other phases of disorder. Progressive tissue anoxia results in acidosis.

Extreme shock is fatal unless reversed. The final stage involves sudden vasomotor collapse and arterial dilatation.

Manifestations of shock change considerably with etiology. Crushing wounds or abdominal injury and peritonitis are associated with hemoconcentration and with lower nephron nephrosis. Chest wounds produce cyanosis, arterial anoxia, and pulmonary edema. After severe burns, much body fluid is lost into affected areas, and blood pressure is often kept up by extreme vasoconstriction.

In other types of shock, such as simple fainting, blood volume is normal but peripheral flow fails, reducing circulation in the brain. The pattern is probably similar in traumatic shock before much blood is shed.

Emergency measures must be kept in mind:

- Stop bleeding by pressure, a tourniquet, or other means.
- Maintain free airways.
- Keep the subject supine, except with severe head injury, pulmonary edema, or dyspnea from chest wounds.
- In severe cases, raise the foot of the bed or stretcher.
- Conserve body warmth without overheating.
- Relieve pain and anxiety by a sedative or narcotic but do not overdose.

The nature and treatment of shock. Merck Report 61:18-21, 1952.

The lost blood and tissue fluid should be restored preoperatively by 1,500 to 2,500 cc. of whole blood, if possible. Life may be saved by an artificial heart forcing blood into an artery at pressure of about 100 mm. of mercury. The circulatory tree is filled, including the heart and brain, with remarkable effect on acute heart failure, surgical arrest, and some cases of myocardial infarction.

If blood is not available, human plasma or albumin solution may be used temporarily. Intravenous saline infused rapidly supports circulation for one-half to one hour. For further replacement, choice between saline or glucose and water depends on loss of electrolytes in sweating, vomiting, diarrhea, or burns.

Because human plasma supplies are insufficient for mass casualties, search continues for plasma expanders that will be excreted or metabolized in twelve hours without toxic effect.

Gelatin may be employed but is too viscous for infusion except when warmed to body temperature. Dextran, discovered in Sweden, will be satisfactory when anaphylactoid reactions can be eliminated.

Polyvinylpyrrolidone is a German product. Work is being done to prepare PVP in a molecular size permitting slow excretion but no body storage.

When blood volume is normal and pressure low, as in drug poisoning or spinal anesthesia, vasopressors are most useful.

¶ ALLERGY TO PAS is less common than digestive reactions but occasionally develops, chiefly as drug fever and skin rash. An instance of Löffler's eosinophilic pneumonitis was also observed at the Laurel Heights State Tuberculosis Sanatorium, Shelton, Conn. Allergic manifestations occurred in 7 of 275 patients treated with para-aminosalicylic acid, or in 2.5%. Frederick C. Warring, Jr., M.D., and Kirby S. Howlett, Jr., M.D., desensitized 4 persons by minute doses of PAS which are slowly and cautiously increased.

Am. Rev. Tuberc. 65:235-249, 1952.

¶ EMETINE may be given to patients with cardiac disease but only if the ailment for which the emetine is prescribed is a greater threat to life than the heart condition and when no other therapy will serve. Treatment may continue in spite of moderate T-wave changes, to a total dose not above 10 mg. per kilogram of body weight. William A. Sodeman, M.D., of Tulane University of Louisiana, New Orleans, prescribed the drug for 8 patients with advanced heart disease. Effects were satisfactory. No adverse cardiovascular changes of any type were observed.

Am. Heart J. 43:582-585, 1952.

The control of obesity is a prime consideration in the management of patients with atherosclerosis and complications.

Fat Metabolism and Heart Disease

JOHN W. GOFMAN, M.D., AND HARDIN B. JONES, PH.D.
University of California, Berkeley

SIGNIFICANT relationship exists between obesity and some classes of lipoproteins associated with atherosclerosis and may adequately explain the excessive atherosclerosis accompanying the obese state.

Two major classes of lipoproteins, the S_f 12-20 class and the S_f 20-100 class, provide essentially the entire contribution of serum lipids to atherosclerosis. The cholesterol of these two classes represents only about 10 to 15% of the total serum cholesterol. The remaining serum cholesterol is not significantly associated with atherosclerosis.

The S_f 12-20 class is relatively stable and not acutely affected by food intake. The S_f 20-100 class, especially the lipoproteins from S_f 35 to S_f 100, are more labile in level, showing appreciable increases after the ingestion of fat. However, in individuals who have a moderate or severe degree of lipid metabolic error, the S_f 20-100 class of lipoproteins is more stable in concentration and is present at moderate or high levels even in the postabsorptive state. S_f 20-100 lipoproteins are associated independently with atherosclerosis to essentially the same degree as S_f 12-20 lipoproteins.

Data obtained by John W. Gofman, M.D., and Hardin B. Jones, Ph.D., from the study of 241 subjects indicate a significant positive correlation between serum S_f 35-100 lipoprotein levels and estimated obesity. The over-all S_f 12-100 lipoprotein level correlates positively with estimated obesity nearly as well, but the relationship between estimated obesity and the S_f 12-20 level is much weaker, while the relationship of total serum cholesterol to obesity is only of borderline significance.

In fact the measurement of the total serum cholesterol alone will obscure the strong relationship of the S_f 35-100 lipoprotein level and estimated obesity.

Inasmuch as many so-called normal individuals have moderate to severe atherosclerosis, small increases of atherosclerosis or atherosclerotic activity may be all important in determining whether atherosclerosis remains silent or results in a frank clinical manifestation. Since many persons after a loss of weight show definite lowering of the S_f 35-100 lipoprotein levels, the possibility of lessening the clinical hazards incident to atherosclerosis through the control of obesity is promising.

Obesity, fat metabolism and cardiovascular disease. Circulation 5:514-517, 1952.

Coordination of the different approaches to the problem of pain may eventually bring better means of relief.

Symposium on Pain

JOHN S. LUNDY, M.D., LAWRENCE C. KOLB, M.D., EUGENE T. LEDDY, M.D., THOMAS J. DRY, M.B., EDWARD A. BANNER, M.D., JOHN W. PENDER, M.D., COLLIN S. MAC CARTY, M.D., AND BAYARD T. HORTON, M.D.
Mayo Clinic, Rochester, Minn.

ERNEST M. HAMMES, JR., M.D., AND RALPH T. KNIGHT, M.D.
University of Minnesota, Minneapolis

Pain Tolerance

JOHN S. LUNDY, M.D.

FEW if any patients become accustomed to pain. On the contrary, tolerance seems to decrease with the duration of pain.

To ascertain an individual's tolerance of pain the physician should watch him during some standard procedure producing relatively slight pain, such as venipuncture or the production of a skin wheal with a local anesthetic agent. The patient's reaction permits assessment of his own account of the degree of pain he is suffering.

Some patients complaining of incessant pain seem to have a condition similar to anorexia nervosa as seen in children. This observation suggests that medical management directed toward improving the patient's appetite, weight, and ability to sleep and toward a new viewpoint and self-confidence may permit the patient to tolerate pain better.

Many different approaches may be made to the problem of pain in an individual patient. If these angles are considered separately, as in the following Symposium, good results in therapy may be achieved, explains John S. Lundy, M.D.

Psychiatric Aspects

LAWRENCE C. KOLB, M.D.

THE patient whose pain is symptomatic of an emotional disorder frequently creates a complicated diagnostic problem and a most difficult case for therapeutic management. Remonstrations or refusing the patient the relief afforded by medication without providing insight and appropriate psychiatric treatment usually accentuates the symptoms and may cause drug dependency.

Most hysterical pains originate in conjunction with an organically determined painful sensation to which the patient attaches, by association, the painful psychic impression which has occurred more or less simultaneously with the physical stimulus for pain. Thus the com-

Special issue on pain. Journal Lancet 72:49-98, 112, 1952.

plaint of pain is a symbol for an associated painful emotional state.

If the patient's description of his illness suggests that some emotional disturbance is associated in time with the onset or recurrence of the painful complaint, psychic processes are probably responsible for maintenance of the complaint. Most frequently, Lawrence C. Kolb, M.D., finds that such contributing events or experiences are the death or separation from a parent, spouse, or lover; difficulties in business or professional relations or with a parent; or threat of illness. During a systematic exploration of the patient's human relations, the hysterical patient with psychogenic pain will frequently voice his complaint loudly when the examiner questions him about the emotionally disturbing situation.

When pain is symptomatic of an obsessive neurosis, a hypochondriac state, or a depression, the patient describes a more or less persistent symptom. In such instances, the psychic conflict is less easily identified. Psychogenically determined sensations of pain are characterized by lack of physical signs of disease, by persistence long past the usual termination period for a known acute illness or physical injury, and by aggravation or lack of amelioration of symptoms with analgesics but relief with sedatives or hypnotics. Pain of psychic origin is often relieved by intensive medical and nursing care which satisfies the patient's dependent needs and is associated with character traits, symptoms, or other indications of a neurotic or psychotic disturbance.

Treatment should be instituted early in an attempt to modify the condition by simple psychotherapeutic measures. Resolution of the painful symptom or conversion into some other symptom should be sought in all cases to forestall narcotic addiction.

When a predominantly hysterical or anxious person has pain, psychotherapy combined with a program of active rehabilitation may bring relief. If the patient has a severe depression, electroshock therapy may prove effective.

Many patients make unsatisfactory social adjustments after prefrontal lobotomy. When the painful complaint represents part of a severe obsessive-compulsion neurosis or a psychotic state refractory to conservative methods such as psychotherapy or electroshock treatment, prefrontal lobotomy may be considered.

Nerve Blocks

JOHN W. PENDER, M.D., AND
JOHN S. LUNDY, M.D.

IN the management of pain, nerve blocks may be used for three different purposes: Diagnostic blocks aid in locating the nerve fibers conducting the painful sensations. Prognostic blocks permit evaluation of temporary interruption of the pathways before use of therapeutic blocks. Therapeutic blocks interrupt pathways temporarily or permanently.

Performance of the block is only a part of the treatment. Cooperation of the patient is vital to good

results. Therefore, the purpose of the block, a general description of the procedure, the expected results, and the part the patient must play in interpretation of paresthesias and sensations of pain must be explained beforehand. Also the patient should be warned that several blocks may be necessary.

Blocking agents—For short-term blocks, most of the water-soluble surgical anesthetics, such as 1 or 2% procaine hydrochloride, are effective.

For prolonged blocks, John W. Pender, M.D., and John S. Lundy, M.D., prefer 0.75 to 2% aqueous benzyl alcohol with 1% procaine hydrochloride. Tetracaine hydrochloride, 0.1 to 0.2%, with epinephrine, 1:260,000, produces blocks of longer duration and appears to have some advantage for blocking sympathetic fibers in the treatment of vascular disorders.

For permanent blocks, absolute alcohol preceded by intravenous injection of 10 cc. of 2.5% thiopental sodium to control the pain of injection is most effective. Spot wetting, injection of only 0.5 cc. of absolute alcohol with intervals of twenty to thirty seconds between injections, is used to limit the spread of alcohol. Total injection volume of alcohol is 2 to 5 cc., with the larger volume used to block large nerves.

Injection of sympathetic nerves is followed by fewer complications than is that of somatic nerves. Use of roentgenograms to accomplish accurate placement of needles aids in limiting infiltration to sympathetic nerves without involving adjacent nerves. A 6% solution of phenol has been employed satisfactorily to inject the sympathetic nerves in a few cases, but cannot at present be recommended for somatic nerves.

Block for shoulder-hand syndrome—Stellate ganglion block with absolute alcohol usually lasts for several months, allowing adequate physiotherapy or surgery of the limb affected by shoulder-hand syndrome. Results are ordinarily better than when repeated procaine blocks are used.

The indicated ganglion is injected by the anterolateral approach as follows:

Pressure is exerted with the left finger in the supraclavicular fossa above the junction of the medial and the middle thirds of the clavicle. This depresses the dome of the pleura and helps to prevent pneumothorax.

The needle, 80 mm. or more in length, is passed over the tip of the finger in the supraclavicular fossa in a medial and posterior direction until the point strikes the surface of the body of the first thoracic vertebra, usually at a depth of 1 to 2 cm.

Before injection, verification by roentgenograms is essential. In an anteroposterior roentgenogram, if the shadow of the needle tip overlies the articular process of the vertebrae on the same side, the needle tip is near the ganglion.

The patient should be warned in advance that drooping of the eyelid on the same side will persist after a good block.

Block for occlusive vascular disease of the lower extremity—Repeated blocks of lumbar sympathetic nerves with short-acting agents are frequently employed in therapy of thrombophlebitis, phle-

bothrombosis, and arterial embolus.

Many patients with chronic vascular disease of the legs, such as occlusive arteriosclerosis, are elderly and, because of complicating disease, cannot stand surgical procedures. In such cases, lumbar sympathetic nerve blocks may give relief for long periods of time.

In the procedure, 2.5% thiopental sodium is given in small amounts intravenously to prevent discomfort during placing of the needles and injection of alcohol yet permit the patient to awake soon after completion of the injection. Morphine sulfate, 1/10 to 1/8 gr. intravenously, is often adequate. Roentgenograms show when the needles are in contact with bodies of the second and third, in some cases only the third, lumbar vertebrae. Up to 4 cc. of absolute alcohol is injected through each needle, 0.5 cc. being given at intervals of twenty to thirty seconds.

After a block with alcohol, the temperature changes in the skin of the foot are not as dramatic as after procaine. The sweating test is used to determine the effectiveness of the procedure. Nonsweating areas indicate where the sympathetic nerve supply has been blocked.

Block for pancreatic pain—Unilateral or bilateral splanchnic block gives good results in alleviating pain from inoperable carcinoma, relapsing pancreatitis, or other lesions of the pancreas. Needles 120 mm. in length are inserted just under the twelfth rib and passed in an anteromedial direction until the tips lie on the body of the first lumbar or twelfth thoracic vertebrae. Injection of 10 to 20 cc. of 0.75% ammonium sulfate and 0.75% benzyl alcohol gives relief from a few days to many hours. The pain is usually aggravated for about one-half hour after the injection.

Block for hip joint pain—Blocking and sectioning of the medial and the lateral femoral cutaneous nerves gives amelioration of pain in the thigh with disease of the hip joint. The posterior femoral cutaneous nerve may be blocked and sectioned to control pain in the posterior thigh region. This is apparently because the nerves are blocked by which the pain sensations are referred.

Anesthesia

RALPH T. KNIGHT, M.D.

AN ANESTHETIC procedure has three objectives: [1] unawareness of painful stimulation, [2] quietness and, if necessary, relaxation for surgery, and [3] maintenance of the patient's physiologic processes as nearly as possible to normal. All these may be obtained by wise application of available technics, observes Ralph T. Knight, M.D.

Blocking of sensory nerves can relieve pain at practically any part of the body. Each sensory branch of a cranial nerve that has sensory function can be reached at an accessible landmark. The spinal nerves can be found paravertebrally on leaving the spinal canal or in their course along the ribs. Many

nerves can also be reached along their courses.

Zones of anesthesia consisting of the nerve distribution of several spinal segments are accomplished by en masse blocking by peridural deposition of solution in the spinal canal. This is done for the lower area of the body through the caudal hiatus. As the volume of solution is increased, the anesthesia is extended upward. Higher zones of four to eight segments of anesthesia may be attained by inserting the needle at the center of the desired region.

Procaine is the drug most generally used, but Metycaine has faster, longer action. Pontocaine has a long-enduring effect but a slow onset, which can be accelerated by the addition of procaine. Xylocaine is apparently an effective agent with low toxicity. Epinephrine added to solutions of these drugs retards absorption and prolongs anesthesia.

Safety with *spinal anesthesia* depends almost entirely upon the knowledge and skill of the anesthesiologist. Dangers are trauma to the dura and nerve tissue and injection of harmful chemicals.

Drugs used are the same as for regional anesthesia. No concentrations should ever be injected higher than 5% procaine, 3% Metycaine, or 0.3% to 0.5% Pontocaine. Solutions should be injected at a rate of at least 0.5 cc. per second, never more slowly.

The faults of *ether* are reduced to a minimum or eliminated if oxygen, ventilation, and removal of carbon dioxide are adequate and higher blood concentrations than absolutely necessary are avoided.

Nitrous oxide and *ethylene* are weak anesthetics but now have an important place as adjuvants.

Cyclopropane produces relaxation almost comparable with that attained by ether, but dangerously deep levels of anesthesia can develop rapidly. In addition to the explosion hazard, the effects upon the cardiac conduction mechanism must be anticipated and watched.

Intravenous *Pentothal Sodium* is strictly a good hypnotic and not an anesthetic. The drug is a most satisfactory induction agent. Depression of reflexes and relaxation are not attained except with doses producing prolonged cerebral and medullary depression. Nitrous oxide or ethylene can be used with Pentothal to assist with the hypnosis and to add a considerable degree of analgesia.

For children, rectal instillation of 2.5% solution of Pentothal Sodium, 0.5 cc. per pound, produces pleasant induction. *Avertin* up to a dose of 100 mg. per kilogram of weight is used the same way.

Curare as an adjuvant has no anesthetic or analgesic properties, but produces relaxation with complete efficiency.

For *obstetric use*, caudal anesthesia can provide effective absence of pain without interfering with labor. Paracervical injection into the broad ligaments plus pudendal block accomplishes the same ends and can be repeated as needed.

General sedation of the mother should be limited to avoid sleepiness of the baby and to keep the

mother's respiration at a high normal for adequate oxygenation and carbon-dioxide removal. When the baby's medulla has become accustomed to high carbon-dioxide levels, breathing will be hard to initiate.

If started early in labor and used in place of sedatives, intermittent administration of a general agent such as nitrous oxide, ethylene, or cyclopropane, for analgesia, not unconsciousness, gives relief without depressing the baby. This requires long costly attendance.

Pain-relieving Drugs

ERNEST M. HAMMES, JR., M.D.

BECAUSE of availability, ease of administration, and low expense, the analgesic drugs, which depress the central pain-appreciation areas, but without producing unconsciousness, are the most frequently used agents for the relief of pain.

Before selecting the most effective analgesic, the physician must consider the severity of the pain, possible side effects and contraindications, the purpose for which the drug is given, and the probable length of need, remarks Ernest M. Hammes, Jr., M.D.

Of the non-narcotic analgesics, the salicylates, particularly acetylsalicylic acid, are by far the most commonly employed. Aspirin is effective in relieving slight degrees of pain and has an extremely low toxicity.

Salicylates are more useful in controlling pain originating from integumental structures, as in arthralgia, myalgia, or headache, than that of visceral origin. The salicylates probably act on the thalamus. Local use, as in gargles and gums for pain of pharyngitis, has no pharmacologic basis.

Aspirin raises the pain threshold only 35% at a dose level of 25 gr., in contrast to an increase of 70% produced by ¼ gr. of morphine. The infrequent side effects of aspirin include local gastrointestinal irritation and occasional idiosyncrasy.

With the pyrazolone derivatives, such as aminopyrine and antipyrine, though the most effective of non-narcotic analgesics, the hazard of agranulocytosis offsets the analgesic value. Use of these non-narcotic agents in combination with each other or with a stimulant such as caffeine, a hypnotic barbiturate, or codeine, is justified on the basis of demonstrable synergism. Analgesic effectiveness is increased in combinations of aspirin, Phenacetin, and caffeine without increasing toxicity over that resulting from equivalent doses of the single constituents.

Of narcotic analgesics, opium alkaloids are the most frequently used. The pain threshold is raised 50% by 60 mg. of codeine, 71% by 15 mg. of morphine, and 93% by 30 mg. of morphine. If average doses of an analgesic do not relieve pain, change to a more potent drug is safer and more effective than increasing the dose of the original analgesic. For instance, 240 mg. and 60 mg. of codeine both raise the pain threshold 50%.

Morphine must not be given to patients with liver disease, hypo-

thyroidism, or bronchial asthma, the last because of the depression of respiration and the contraction of bronchial musculature produced by morphine. In patients with prostatic hypertrophy or urethral stricture, morphine may produce acute urinary retention by increasing the tone of the bladder sphincter. Aged patients and infants are unduly susceptible to the central depressant action of morphine. The fetus or nursing infant may be affected by morphine given to the mother.

The nausea and vomiting frequently occurring after morphine can usually be prevented by a small initial injection followed in thirty minutes by the remainder of the full therapeutic dose. Allergic manifestations such as pruritus, urticaria, and sneezing may appear. Such complications as tremors, insomnia, delirium, and convulsions are rare.

Heroin is an extremely potent analgesic but causes addiction.

Meperidine (Demerol) is 10% as active as morphine but is free of hypnotic effects and does not depress respiration. While safer than morphine for patients with increased intracranial pressure, Demerol produces miosis and a sluggish pupillary reflex, thus interfering with signs essential in treatment of the condition responsible for the increased pressure. Demerol is not free from addicting properties.

Dihydromorphinone hydrochloride (Dilaudid) is active therapeutically and toxic in doses about one-fifth that of morphine. Dilaudid has no sedative effect but, like morphine, profoundly depresses respiration.

Methadone hydrochloride (Dolophine) produces analgesia of longer duration than morphine, is active orally, has little sedative effect, and causes considerably less central depression of respiration than morphine. The drug is often useful for semiconscious individuals with head injuries, brain tumors, or intracranial hemorrhage. Methadone leads to addiction relatively slowly and does not have severe withdrawal symptoms. Methadone is useless for preanesthetic or obstetric analgesia.

For patients with pain of psychogenic origin, considerable variation exists in responses to analgesic drugs. The pain of anxiety-tension states is often relieved better by sedatives or a peripheral muscle-relaxing drug, such as Myanesin, than by analgesics. Small intravenous doses of barbiturates may be used to differentiate organic from psychogenic pain since doses well below those producing drowsiness will completely abolish pain in anxiety states.

Painful Upper Extremity

COLLIN S. MAC CARTY, M.D.

THE term brachial neuritis designates several processes producing pain in the upper extremity. On the basis of the pathways transmitting the painful sensation, Collin S. MacCarty, M.D., classifies these conditions as somatic or sympathetic syndromes.

Somatic syndromes—Trauma is a factor in one-half or more of the lesions causing pain in the upper extremity.

Stretch and compression injuries, wounds, fractures, and dislocations may affect the brachial plexus or cervical roots or terminal nerves of the plexus. Hypertrophic arthritis or protruded cervical intervertebral disk may also traumatize the cervical roots that emerge from the cervical foramina.

In the differential diagnosis of lesions of cervical nerve roots that produce upper extremity pain, a careful history, roentgenologic studies, and complete neurologic examination will indicate or eliminate the possibility of intraspinal tumors, such as neurofibromas or meningiomas. A malignant apical lesion of the lung, Pancoast's tumor, may involve the lower roots or trunks of the brachial plexus.

A tight scalenus anticus muscle alone or in combination with a cervical rib may compress the plexus. Adson's test for diagnosis of the scalenus anticus syndrome is performed by turning the patient's head toward the side of the painful extremity with chin tilted upward. The patient is then asked to take a deep breath. If the radial pulse is obliterated by these actions, surgical division of the scalenus anticus muscle is indicated and, if necessary, removal of the cervical rib.

The costoclavicular syndrome results from intermittent compression of the subclavian artery and vein between the clavicle and the first thoracic rib. This can often be demonstrated by having the person brace the shoulders backward and downward, thereby eliminating the radial pulse.

In the hyperabduction or subcoracoid–pectoralis minor syndrome, paresthesias of the upper extremity develop while sleeping with the arms above the head or working with hyperabducted arms. The probable cause is compression of the subclavian artery and vein and the brachial plexus beneath the coracoid process of the scapula and the pectoralis minor muscle.

Sympathetic syndromes—The initial stage of the shoulder-hand syndrome begins with a painful shoulder followed by swelling, pain, and stiffness of the hand and fingers.

During the initial three to six months, the hand first becomes pink or red, later cyanotic or pale. The grip is weak. During a second stage of similar duration, relief of the painful shoulder and resolution of the swelling of the hand occur. The fingers become more stiff and deformed. Atrophy of subcutaneous tissues and bone takes place. The cutaneous temperature of the hand decreases.

The last stage may last for months and irreversible changes in the hand and permanent limitations of mobility of the shoulder, hand, and fingers may result. Roentgenograms show osteoporosis of the whole extremity.

This syndrome is seen complicating myocardial infarction, hemiplegia after either cerebrovascular accident, brain tumor or trauma, protruded cervical intervertebral disk, or cervical osteoarthritis. The syndrome may appear after trauma to the brachial plexus or inflammatory lesion such as herpes or gonococcic arthritis.

Treatment of the shoulder-hand

syndrome consists of interruption of the sympathetic pathways either by repeated injection of the ganglia or by surgical removal of the stellate ganglion and the upper 2 or 3 thoracic ganglia. Sympathetic blocks are usually reserved for relatively slight conditions or for a patient who is too great a surgical risk.

True causalgia is a complication of injury to peripheral nerves and is characterized by lesions adjacent to or involving major nerves or vessels. The entire extremity is excruciatingly and constantly painful. A reddish cyanosis may be limited to the area innervated by the damaged nerve. Sweating is excessive and cutaneous temperature may vary greatly. Slight stimuli or emotional upset precipitates paroxysms of pain. In these cases, pain in the upper extremity may be controlled by cervicodorsal sympathectomy.

Frequently, sympathetic reflex pain to the upper extremity is an important part of the anginal syndrome. On an anatomic basis, relief may be obtained by rhizotomy of the upper 5 thoracic dorsal roots or removal of the stellate ganglion and upper 5 thoracic sympathetic ganglia. Many patients cannot stand surgical interruption of the pathways.

Alcohol injection into the stellate ganglion has limited success.

The problem of the pain of phantom limb has been approached by removal of neuromas, rhizotomy and chordotomy, and resection of the cerebral cortex. Degree of success varies considerably. Usually, sympathectomy alleviates the burning causalgic type of pain.

Cardiac Disease

THOMAS J. DRY, M.B.

THE duration and intensity of the pain of myocardial ischemia vary under the different circumstances in which angina pectoris occurs.

Angina of effort is described by Thomas J. Dry, M.B., as having onset and cessation related, respectively, to increase and decrease in the work of the heart. Cardiac labor is augmented during exertion, after excitement, and also, with even less exertion, after meals and in cold weather.

The typical pain distribution is retrosternal, tending to appear in the midline behind the sternum, in the epigastrium, or in the throat and to spread centrifugally. A few patients describe the pain as located in the left anterior thorax, truly precordial.

Spread may be to either arm, less often to both, or to the lower jaw. Pain may start in the arm and spread centripetally to the regions just mentioned. Onset is abrupt and duration short, usually lasting less than five minutes.

The pain is relieved more quickly by vasodilating drugs such as glyceryl trinitrate and amyl nitrite than by rest alone. The response of the thoracic pain to these drugs is at times helpful in differential diagnosis.

Angina resulting from acute coronary occlusion with myocardial infarction has all the manifestations of the angina of effort but is more severe and prolonged, is not relieved by vasodilating drugs, and may arise while the patient is at

rest or even asleep. Several prolonged attacks, lasting fifteen to thirty minutes, may occur without relation to effort, representing prodromes or actual onset of acute coronary occlusion.

Slight attacks, called "acute indigestion," are episodes of anginal pain referred to the epigastrium or lower sternum, persisting fifteen to thirty minutes and gradually disappearing. Severe seizures may continue for many hours and be associated with signs of grave shock. The attack may be accompanied by severe dyspnea, with or without acute left ventricular failure, and entail no pain or only a slight sense of burning.

Except in slight attacks, the patient is usually apprehensive, perspires freely, and has an ashen color. Blood pressure ordinarily decreases but may be elevated initially and then drop, representing a peripheral vascular manifestation of shock. Heart sounds frequently reveal nothing except episodes of ectopic rhythm preceded by frequent extrasystoles.

Suggestive electrocardiographic changes include appearance of Q waves, diminution of R waves, displacement of RS-T segments, inversion of T waves, and conduction disturbances. When T_1 becomes the mirror image of T_3 the change is almost certainly indicative of infarction.

The *pain of pericarditis* may be widespread over the whole thorax, localized in the substernal, pericardial, epigastric, or intrascapular regions, or may extend into the neck or arms. The aching or squeezing pain is typically aggravated by breathing, coughing, twisting the torso, and swallowing. Pain may depend on involvement of the parietal pericardium and the adjacent pleura.

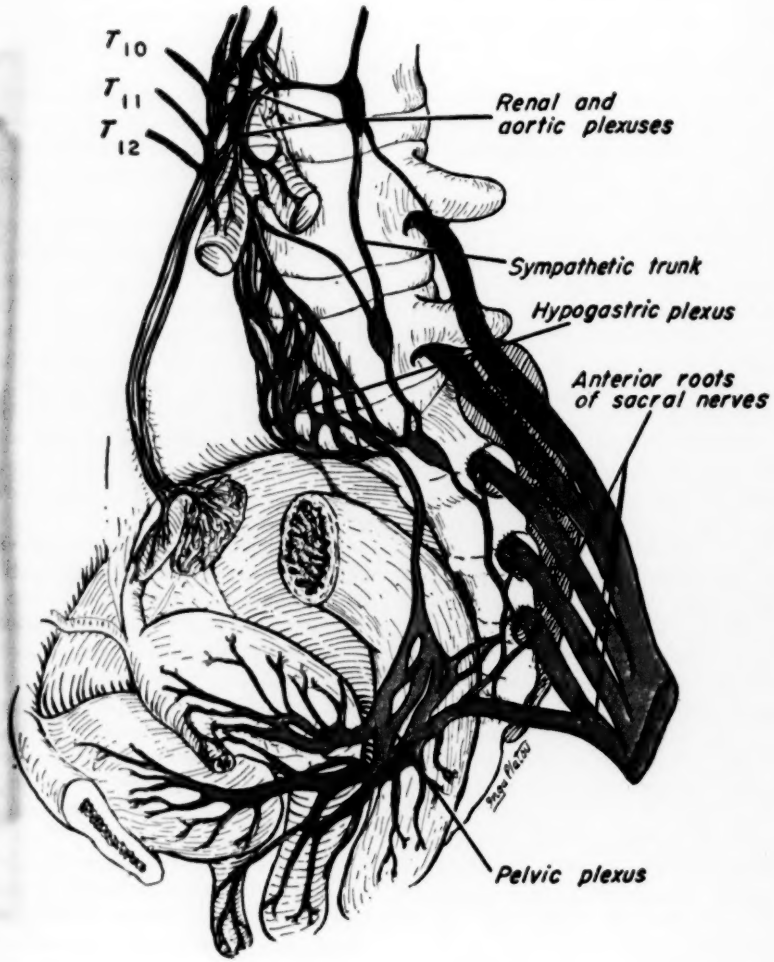
The roentgenologic finding most suggestive of pericarditis is increase in size of the cardiac silhouette because of pericardial fluid, cardiac dilatation, or both.

Electrocardiographic indications of pericarditis are an elevated RS-T segment with T wave dome-shaped or peaked in the early stage and T-wave negativity later. In contrast to signs of myocardial infarction, the RS-T segment is not depressed at any time, T waves are never in the characteristic reciprocal relationship in the I and III leads, and a Q pattern never develops in the standard or chest leads.

Pain from a dissecting aortic aneurysm may be indistinguishable from that with coronary occlusion. Aneurysm is likely if repeated electrocardiograms remain unchanged after attacks which clinically indicate myocardial infarction, especially with pain referred to the upper thoracic vertebrae, and when roentgenologic studies show progressive changes in the configuration of the aortic arch.

The pain resulting from erosion of bone by a large aneurysm is persistent and may be extremely severe. Nerve roots are exposed by erosion, and pain results in the distribution of the involved nerves. The pain is ordinarily worse at night.

Other effects of displacement, obstruction, and pressure caused by



Neuroanatomy of female pelvis

the aneurysm are dysphagia, hoarseness from involvement of the left recurrent laryngeal nerve, hemoptysis, and hematemesis. The heart can be much enlarged when aortic insufficiency is part of the syphilitic process.

Pelvic Pain

EDWARD A. BANNER, M.D.

DISEASE of the ovaries, uterus, oviducts, or pelvic veins may cause pelvic pain. The diagnostic ability and judgment of the surgeon are as important as his technical skill. Too often an unnecessary major operation is done to relieve an insignificant source of pain, remarks Edward A. Banner, M.D.

Visceral pain may be direct or referred. Either type probably originates from stimulation of free nerve terminations within the involved organ.

Since the viscera lack sense of localization, ghostlike disturbances may result from an affected organ. Such factors as exhaustion, anemia, and mental states may influence the intensity of the stimulus. Therefore, the physician's interpretation must be based on the patient's general physical state.

Sensations of pain arising in the pelvic viscera are transmitted by the autonomic nervous system below the level of bifurcation of the aorta. The presacral nerves constitute the chief nerve supply of the bladder, the rectum, and the internal genitalia, except the ovary and part of the fallopian tube. The fibers diverge, producing the bilateral inferior hypogastric plexus which joins the pelvic plexus.

The nerves supplying the ovary and part of the fallopian tube are derived from the renal and aortic plexus. The neurocomponents supplying the ovary originate mainly from the tenth thoracic nerve, those supplying the oviducts from the eleventh and twelfth thoracic nerves. Because of the differing anatomic roots, presacral neurectomy, which usually relieves pain originating in the uterus, has little or no effect on pain arising in the oviducts or ovaries.

Pain of ovarian origin is caused chiefly by capsular stretching, circulatory disturbance, or both.

Ovarian tumors do not ordinarily cause pain until peritoneal irritation or stretching is produced. Torsion of the pedicle of a tumor generally produces a combination of localized pain from peritoneal irritation or injury and a diffuse discomfort accompanied by reflex gastrointestinal symptoms, such as vomiting, from vascular disturbances within the tumor.

The pain of ovulation, mittelschmerz, is usually identified by regularity of occurrence in relation to the cycle. Because of rapidity of onset, severity of symptoms, or, sometimes, continued bleeding from a small arteriole at the ovulation site, a diffuse rigidity of the lower right quadrant simulating ectopic pregnancy, appendicitis, or a twisted ovarian cyst may be observed.

Pain of uterine origin may result from twisting of a subserous myoma pedicle and is often the chief symptom with chronic cervicitis.

The infection may spread along the lymphatics of the uterosacral ligaments to the presacral plexus, causing neuritis.

Uterine retrodisplacement is rarely etiologic in lower pelvic pain. Uterine carcinoma of the body or cervix is notoriously painless before involvement of contiguous structures or nerves. Pain usually indicates a far advanced lesion.

Postabortive processes primarily involving the uterus frequently cause lower abdominal pain. The uterus is large, boggy, and tender and severe pain is elicited by cervical manipulation. Inflammatory cervical strictures may produce severe, colicky lower abdominal pain. Extreme degrees of procidentia may be responsible for discomfort and lower pelvic pain caused chiefly by enteroptosis after descent of pelvic viscera and resulting changes in intraabdominal contents.

The secondary or acquired type of dysmenorrhea results from pelvic lesions, is frequently incapacitating, and occasionally a forewarning of serious pelvic disease. Presacral sympathectomy with complete excision of the superior hypogastric plexus is effective therapy, but should be done only when no extra-uterine pathology exists and after usual medical treatment has failed.

Only about 25% of patients with endometriosis are free of pain. When palliative measures fail, surgery must frequently be tried to alleviate the painful symptoms.

Pain originating from the oviducts may indicate tubal pregnancy or rupture, salpingitis, or tubal tuberculosis. A periovarian cyst is rarely responsible for significant symptoms but may twist on the pedicles and cause such severe acute pain that laparotomy is necessary. Primary tumor of the oviduct is not accompanied by a specific type or pattern of pain.

Pain may be the chief symptom of thrombophlebitis of the deep pelvic veins. Recognition of the condition is important because of potential danger from sepsis and embolism. Heparin or dicumarol is now widely used in treatment.

Analgesic X-Ray

EUGENE T. LEDDY, M.D.

THE degree of relief resulting from roentgen therapy depends on the radiosensitivity of the cells, benign or malignant, that are responsible for the painful condition.

The number of diseases in which x-rays are used for alleviation of pain has greatly decreased in the past few years because other means of relief have been found, often entailing much less hazard. Nevertheless radiation therapy is still preferred in several conditions associated with severe, usually intractable pain, states Eugene T. Leddy, M.D.

In *acute sinusitis,* which usually follows a cold, pain may be confined to one sinus, but most patients referred for roentgen therapy have pansinusitis. Two to four roentgen treatments at a low-dose level may reestablish drainage after termination of the inflammation blocking the ostia.

Bursitis, acute painful shoulder, responds rapidly and effectively to roentgen treatment. The presence or absence of lime around the shoulder does not seem significant in results. Chronic bursitis of the shoulder or other joints is probably better treated by methods other than x-ray.

In pain resulting from *herpes zoster,* roentgen therapy is most effective if directed to the spinal roots of the nerves distributed through the zone of pain. If an eruption is present, treatment should also be applied to the involved skin. The technic of roentgen therapy, including frequency of repetition and the total dosage, is based upon the usual roentgenologic treatment of inflammation. The more chronic the duration of pain, the less likely is relief to be obtained.

In pain due to *psoriatic arthritis* x-rays applied by crossfiring fields that extend well above the involved wrist, ankle, or other joint, administered in slight doses in two to four courses of treatment, may produce definite and long-lasting palliation.

Carcinoma may spread to bone at any time and *metastatic involvement of bone* is not always a late process. The pain is at first slight but, as time passes, becomes more severe and more constant. Spontaneous cessation of the pain means that the invading carcinoma cells which have been stretching the periosteum and causing pain have ruptured through that membrane and are growing extraperiosteally.

Most effective treatment is with high doses of high-voltage x-rays. In some cases, appropriate hormones may be effective adjuncts to roentgen therapy. Best results are obtained when tumors originate in the thyroid; breast tumors are next in response. Results are least satisfactory when the tumor starts in the prostate or suprarenal gland.

Plantar wart is a painful, benign lesion that may be cured in about 80% of cases by x-rays. Some warts are refractory to therapy within the limits of safety. Repetition of the treatment may cause ulceration of the area.

Spondylitis is commonly treated by doses that are low and several courses are usually given at appropriate intervals with resulting alleviation of stiffness and pain. Since temporary menopause may follow such treatment in women, both the quantity of the dose and the site of treatment in relation to the variable anatomic position of the ovaries should be carefully considered.

Histaminic Cephalgia

BAYARD T. HORTON, M.D.

PAIN is the chief symptom of histaminic cephalgia, which is a unilateral headache occurring most often in men, usually of middle age or older. The condition is an anaphylactoid reaction with local and systemic manifestations.

The pain is sudden and severe and usually lasts less than an hour, subsiding abruptly. Common sites are the orbit and temple, but the pain may extend to the upper or lower jaw, occipital region, neck, and shoulder. Ocular signs are lac-

rimation, redness, and slight edema and are frequently associated with rhinorrhea or plugging of the nostril and dilated vessels in the painful area. Sweating often occurs on the forehead over the involved eye.

Attacks may arise one or more times daily but usually awaken the patient from sleep. The pain is so severe that the patient is up and pacing the floor before being fully awake. Nocturnal occurrence is a significant clue to diagnosis.

Histaminic cephalgia and histaminic headache are not synonymous. Subcutaneous injection of 0.35 mg. of histamine will cause histamine headache in normal persons and those susceptible to histaminic cephalgia. The headache, chiefly intracranial, results from dilatation of large vessels at the base of the brain, and lasts about five to ten minutes. However, within an hour, typical histaminic cephalgia will then appear in susceptible persons. The pain is associated with dilatation of extracranial vessels.

Patients with histaminic cephalgia are obviously hypersensitive to histamine, which is probably released from sensitized cells in the pain area and accounts for most of the local phenomena. During an attack, the increase in the acidity of gastric contents is comparable to that induced by subcutaneous injection of histamine. A relationship exists between acute peptic ulcer and histaminic cephalgia.

Differential diagnosis—Histaminic cephalgia does not have the hereditary background of classical migraine, shows no scotoma, and has typical ocular and nasal signs not occurring in migraine. Attacks of migraine develop in stages; histaminic cephalgia is sudden, acute, and most frequently nocturnal.

Trigeminal neuralgia's typical pain and trigger zones are lacking, and the pain of histaminic cephalgia does not follow the distribution of the fifth nerve.

The pain of recurrent corneal erosion, often occurring at night or upon first opening the eye in the morning, is confined to the orbit and is accompanied by blepharospasm and by photophobia, not present with histaminic cephalgia. Furthermore, examination with the slit lamp reveals the erosion.

Tension headaches also occur at night but the pain is less violent. Such headaches are associated with anxiety states and can be differentiated from histaminic cephalgia by a study of the patient's history.

Treatment—The objective of treatment, as stated by Bayard T. Horton, M.D., is alleviation of the pain of an acute attack and desensitization with histamine to prevent subsequent attacks.

Intravenous injection of 1 cc. of dihydroergotamine (DHE 45) frequently aborts an acute attack in one to five minutes if administered at onset. Immediate breathing of pure oxygen often gives relief, particularly in slight attacks. Nocturnal attacks may be prevented by rectal suppositories at bedtime of 2 mg. of ergotamine tartrate and 100 mg. of caffeine.

Desensitization is accomplished by an initial subcutaneous injection of 0.05 cc. of histamine diphos-

phate with a second injection six to eight hours later. Two injections are then given daily; the amount injected is increased by 0.05 cc. until 0.50 cc. is reached. In some cases, doses of 0.75 or even 1 cc. may be necessary.

Aggravation or precipitation of symptoms during treatment indicates sensitization rather than desensitization. The dose should be reduced to one-half and the 0.05-cc. increments made to a level just below that which precipitates the symptoms. This amount is used as a maintenance dose. The patient is instructed in the technic of injecting the histamine solution and continues this amount one or more times daily for an indefinite time.

With severe recurrence of symptoms, administration of whole cortical extract or cortisone may be necessary before resuming histamine treatments. Cortisone alone as therapy for histaminic cephalgia has yielded disappointing results thus far.

Conductivity of Leather-soled Shoes

BARNETT A. GREENE, M.D.

STUDIES of conductivity demonstrate leather-soled shoes to be a reasonably satisfactory substitute for special conductive shoes in the operating room.

In analyses of 69 static-caused anesthetic explosions, Barnett A. Greene, M.D., of Brooklyn Women's Hospital, Brooklyn, did not find leather-soled shoes in any way responsible for the circumstances leading to the explosions or fires. Similarly, in the administration of 100,000 general anesthesias, the majority of which included combustible concentrations of cyclopropane or ether or both, no static-caused accidents occurred although the anesthesiologists were leather shod.

During low humidity and on a nonconductive floor, leather soles have an average resistance of 52 megohms and a minimum of 0.1 megohm. Even with a resistance of 1,000 megohms, static electricity would be dissipated to a grounded floor as rapidly as the charge could accumulate.

If the resistance through both shoes is taken as 1,000 megohms, a much higher value than any found by actual measurement, and capacity to ground electricity is assumed to be the average figure of 100 micromicrofarads, then about 0.3 second would be required for drawing off the charge. Even with rapid walking, a person entering a grounded zone would become fully discharged during each step, and could not build up an appreciable charge.

The place of leather-soled shoes in the prevention of anesthetic explosions. Anesthesiology 13:203-206, 1952.

Linking the aorta and coronary sinus has brought relief to several patients with coronary artery disease.

Operation for Coronary Artery Disease

CLAUDE S. BECK, M.D.
Western Reserve University, Cleveland

THE problem of coronary artery disease is, essentially, to supply blood to the deprived heart muscle.

A two-stage operation described by Claude S. Beck, M.D., is designed to overcome cardiac anoxia by increasing the flow of arterial blood to the heart. The operation is done in two stages to avoid thrombosis of the graft and hemorrhage into the heart muscle, which sometimes otherwise occur.

Stage I of the operation consists of placing a vein graft, obtained from the cephalic or basilic vein, between the aorta and the coronary sinus.

Incision is made in the left chest between the seventh and eighth ribs and through the pericardium to visualize the coronary sinus. The sinus is opened for a distance of 6 to 8 mm. and the vein graft is sutured in place and subsequently anastomosed to the aorta.

After clamps are removed, blood flows from the aorta through the graft and into the coronary sinus. Most of the blood escapes into the auricle.

In some patients a flash of pink will be observed in the tributaries of the sinus, indicating that some aortic blood can enter the veins. If the sinus is temporarily occluded at its ostium, the veins of the left ventricle become bright pink.

Stage II of the operation is done three weeks after the first. By an orlon thread, the ostium between the coronary sinus and the auricle is partially occluded so that most of the blood from the aorta is available for the myocardium. The veins of the left ventricle and of the myocardium are pink after successful completion of the second stage.

For three years, 1948-50, the operation was used only for patients who were very poor risks and the mortality rate was high. Of the 12 patients, 8 died. Since then, 28 patients have been operated upon, with 23 recoveries. Most of these patients are free of pain and have returned to work.

Of the 5 patients who died, 4 had advanced degenerative disease and were completely or almost completely incapacitated. The fifth death resulted from unexplained necrosis of the graft, possibly from activation of a latent infection.

Of the 23 patients who recovered, 13 had both stages of the operation; 2 have had only the first stage. The graft was thrombosed in 6 cases, and the graft was not placed in 2.

Operation for coronary artery disease. Illinois M. J. 101:123-125, 1952.

Medical treatment of diverticula should be tried before surgery which is indicated in less than 5% of cases.

Diagnosis of Duodenal Diverticulum

RICHARD B. CATTELL, M.D.
Lahey Clinic, Boston

THOMAS J. MUDGE, M.D.
Augustana Hospital, Chicago

THOUGH common, diverticula of the duodenum rarely cause severe symptoms, and the decision to remove the lesion is often difficult to make.

The etiology of the diverticulum may be a congenital weak point in the bowel wall, probably a blood vessel entrance or exit or aberrant tissue in the duodenal wall, which gradually balloons out from intraluminal pressure.

No typical symptom pattern exists, but upper abdominal pain is the most common indication of a diverticulum. Flatulence is the next most frequent symptom, including belching, bloating, excessive gas, and feelings of distention or fullness. Weight loss and melena occasionally occur. Most diverticula are symptomless.

The preoperative diagnosis of duodenal diverticulum is invariably made by roentgenographic examination of the upper gastrointestinal tract. Richard B. Cattell, M.D., and Thomas J. Mudge, M.D., find that about 2% of patients among 2,000 having gastrointestinal examinations have duodenal diverticula. Only 1 in 7 of the diverticula found by roentgenographic study is considered a possible source of symptoms, and less than 5% of those discovered need diverticulectomy.

Small outpouchings are generally less likely to cause trouble than the large balloon-shaped lesions, especially if the neck is narrow. During fluoroscopic observation, the abdomen is palpated over the lesion to elicit tenderness.

After the examination, films are again made at hourly intervals to visualize the small bowel and to determine whether the diverticulum will empty readily. A well-filled sac after six hours is further indication that the diverticulum is responsible for symptoms.

If the gallbladder has not been previously removed, a cholecystogram should be made, after which a barium enema is given. If all evidence reveals that the stomach, duodenum, gallbladder, and small and large bowel are normal, the diverticulum may be presumed to be at fault.

Occasionally doubt may still exist as to whether the diverticulum is the source of the patient's pain.

The surgical significance of duodenal diverticula. New England J. Med. 246:317-324, 1952.

Trials of ulcer management, alkalies, antispasmodics, and low-fat and colitis diet can be made to determine if medical therapy will relieve the distress. Mixtures of phenobarbital and belladonna are frequently used as adjuvants to the dietary regimen. Failure or incomplete relief by conservative measures after prolonged trial again raises the consideration of operative therapy.

If other pathologic changes are found, the decison to remove the diverticulum is deferred until the time of surgery. After removal of the gallbladder, exploration of the common bile duct, or whatever the primary consideration is, the diverticulum is dissected free, and the size, shape, and location of the pouch and presence of inflammation or retained food are ascertained before the final decision for excision is made.

Diverticulectomy is accompanied by a significant mortality. Even when surgical intervention is done only after careful study, the results are often disappointing.

Intussusception in Adults

CHARLES H. BROWN, M.D., AND ARTHUR G. MICHELS, M.D.

INTESTINAL tumors are the usual cause of intussusception in adults.

The condition is rare. Among 430,000 new admissions to the Cleveland Clinic, Charles H. Brown, M.D., and Arthur G. Michels, M.D., found only 15 adults with intussusception. Neoplasms were responsible in 8 cases, benign tumors in 6; in 1 case the intussusception was unexplained.

Cardinal signs of invagination are abdominal cramps, vomiting, a palpable mass, and bloody stools. The condition in infants is acute and usually occurs without underlying intestinal disease; a mass is almost always palpable and typical roentgen signs persist to confirm the diagnosis. In the 15 adults observed, symptoms of bowel obstruction occurred intermittently for about eight months, masses were palpable in only 6 of the patients, and roentgenograms disclosed no intussusception in many because examinations were made after attacks had subsided.

Roentgenograms showing a coiled spring appearance produced by barium between the intussusceptum and intussuscipiens are pathognomonic. Additional roentgen signs are abnormal gas patterns, evidence of obstruction, and a narrow barium column at the site of the invagination.

Intussusception is seldom recognized in old persons before roentgenologic examination or surgery.

Intussusception in adults. Surgery 31:538-543, 1952.

Responsibility for thorough study of every patient with gastrointestinal symptoms rests with the physician.

Early Diagnosis of Cancer of Colon

SIDNEY A. PORTIS, M.D., AND CHARLES H. LAWRENCE, M.D.
Michael Reese Hospital, Chicago

INITIAL signs of malignant disease of the colon are often lacking and may be entirely misleading when present.

The public must be educated to seek medical advice immediately on the appearance of abdominal distress, state Sidney A. Portis, M.D., and Charles H. Lawrence, M.D. The physician is then responsible for a thorough study and prompt evaluation of all gastrointestinal symptoms, in order to make an early diagnosis.

Anyone over 40 years of age should have a complete examination, with annual examinations thereafter.

Three outstanding manifestations bring the patient to the physician. Alteration of bowel habits is the most frequent symptom, and the one that clearly directs attention to the gastrointestinal tract. Carcinoma of the right colon usually produces diarrhea, while persistent constipation more often attends malignancy of the left side. Change in bowel function for more than a few days in a hitherto normal person necessitates a complete gastrointestinal study, including examination of the stools for occult blood and rectosigmoidoscopic and roentgenologic studies.

Abdominal pain is the next most frequent symptom and, although vague and nonspecific, should call attention to the possibility of an abdominal disease requiring further study.

Blood in the stool ordinarily comes from lesions in the anorectal area; inspection usually reveals the source. However, a colon malignancy can be the cause, and benzidine and guaiac testing of the stools should be part of every routine examination.

If the guaiac reaction is positive and the benzidine reaction strongly positive, a meat-free diet is given for a few days and the tests redone. A positive indication then calls for a rigid examination to determine the site of bleeding. Cytologic examination of the stools is not a reliable routine device for determining the presence of cancer of the colon.

Sepsis may be the first pathologic picture, especially in right-sided lesions. Chills and fever suggest ulceration. Anemia is frequently present, and pronounced anemia usually indicates advanced disease.

Over half the carcinomas of the colon lie in the rectum and rectosigmoid, and nearly half are digi-

Early clinical diagnosis of carcinoma of the colon. J. Internat. Coll. Surgeons 17:86-91, 1952.

tally palpable. Bimanual rectal and proctosigmoidoscopic examinations should be routine, with the removal of a biopsy specimen from all suspected lesions. Well-recognized premalignant lesions, such as polyps, should be extirpated.

Differential diagnosis of colon cancer must include all functional and organic disease occurring in the large bowel. Ulcerative colitis most frequently simulates carcinoma of the colon. Although colitis, diverticulosis, diverticulitis, or polyposis is present, a carcinoma may be coexistent.

Preoperative Use of Oral Aureomycin

WILLIAM I. METZGER, M.D., AND ASSOCIATES

ALTHOUGH intestinal contents cannot be sterilized by any available nontoxic drug, oral aureomycin is probably as effective as any single agent for preoperative use. However, since numbers of organisms remain in the gut after aureomycin treatment, the surgeon must continue to depend on good technic rather than on antibiotics to prevent peritoneal infection.

William I. Metzger, M.D., Louis T. Wright, M.D., Robert F. Morton, M.D., James C. DiLorenzo, M.D., and Milton Marmell, M.D., of Harlem Hospital, New York City, studied the effects of aureomycin on 15 adult hospitalized patients, none of whom had gastrointestinal disease.

The antibiotic was given in a dosage of 1 gm. three times daily, usually for three or four days. Approximately half the patients received aureomycin capsules containing Paraben, a preservative. All were given low-residue diets, warm soapsuds enemas once daily, and epsom salts to liquefy the stools and provide the best possible conditions for the antibiotic.

Very high stool levels were produced but no organism studied was totally eliminated. Coliforms, yeasts, and anaerobes, both spore and non-spore forming, were considerably reduced in numbers. After reduction of sensitive organisms, *Proteus*, streptococci, or staphylococci proliferated in some cases.

Preoperative medication should be continued no longer than the shortest time needed to achieve best results, which in this study was approximately three days. Although increased tolerance to aureomycin is not common, especially during short medication periods, sudden exposure of cells to large amounts of the drug may intensify selective processes or efforts on the part of the organism to overcome the unfavorable environment.

Antibacterial action of oral aureomycin on the contents of the colon of man. Antibiot. & Chemother. 2:91-102, 1952.

Regardless of the type of ectasia, proximal bronchial obstruction is present in nearly every case of bronchiectasis.

Pathogenesis of Bronchiectasis

RUSSELL S. JONES, M.D., AND FRANCIS H. COLE, M.D.
University of Tennessee and West Tennessee Tuberculosis Hospital, Memphis

PROXIMAL bronchial obstruction is the common denominator in all types of bronchial ectasia.

Primary bronchiectasis refers to bronchial dilatation without predisposing or antecedent cause, but bronchiectasis frequently accompanies tuberculosis, bronchiogenic carcinoma, and other diseases which obstruct the larger bronchi. Primary bronchiectasis is difficult to differentiate from chronic suppurative disease without significant bronchial changes, state Russell S. Jones, M.D., and Francis H. Cole, M.D.

The once typical pattern of bronchiectasis—foul and layered sputum, racking cough, repeated pneumonia, and rapid deterioration—is becoming steadily less common with the early application of potent antibiotics, and today the symptoms are quite variable. Bronchograms are the only dependable diagnostic procedure.

The left lower lobe is most frequently involved, singly or with other portions of the lung. The condition does not recur after complete surgical extirpation, but even slight residual bronchiectasis will progressively worsen.

Stenosis of the bronchial ostia is commonly found in the dissected specimen in primary ectasia and may apparently result from a single episode of infection or repeated chronic infections. The scarring is frequently due to both scarring and active inflammation. Immediately beyond such ostia, the bronchus is dilated.

Two extremes of ectasia with intervening gradations may be distinguished. At one extreme, the medium sized bronchi are dilated into tubular or cystic structures and the smaller peripheral branches are frequently obliterated. The ostia of the branches are often narrowed. The involved lung is reduced in volume and the degree of fibrosis varies greatly.

At the other extreme is the gross condition of numerous, closely grouped cysts, expansions of the tiny bronchial radicles. The dilatation is less pronounced at the ostia, resulting in the appearance of narrow openings between cystic structures. The pulmonary tissue is atelectatic and fibrosed, but the volume of the involved tissue is usually greater than the tubular ectasia of middle-sized bronchi.

Microsection in primary bronchiectasis reveals a slight chronic inflammation and reparative fibrosis of bronchi, with few indications of any severe generalized process weakening the bronchial walls.

Bronchiectasis. South. M. J. 45:101-109, 1952.

Since obstruction of the proximal bronchi is apparently common to all bronchial dilatation, bronchiectasis is a morphologic effect rather than a disease entity. In primary bronchiectasis, the obstruction or narrowing is frequently a stenosis of the ostia of segmental or smaller bronchi and, less commonly, is due to a flaccid wall, distortion, or kinking. When bronchi are dilated, the ostia resist stretching, because of the encircling ring of cartilage, and are only apparently stenosed. Any inflammatory swelling is limited by the cartilaginous ring at the ostia and narrows the bronchial lumen, rather than thickening at the expense of adjoining tissue.

The lymphoid tissue is also commonly located at the bronchial branching and may contribute to the inflammation at the ostia.

After pulmonary disease in childhood, the ostia may become stenosed and fail to grow with general body and pulmonary growth, leading to progressive relative bronchial obstruction. Childhood tuberculosis in and about the bronchi may be an important cause of ectasia.

Bronchial obstruction predisposes to recurrent infection, increasing the retained bronchial exudate and mucus, and inducing pneumonia, abscess, and fibrosis. Coughing is less effectual.

Atelectasis may provoke bronchiectasis only when the patient has proximal bronchial disease.

Antidote for Dicumarol Overdosage

ALFREDO REHBEIN, M.D., ALFRED JARETZKI III, M.D., AND DAVID V. HABIF, M.D.

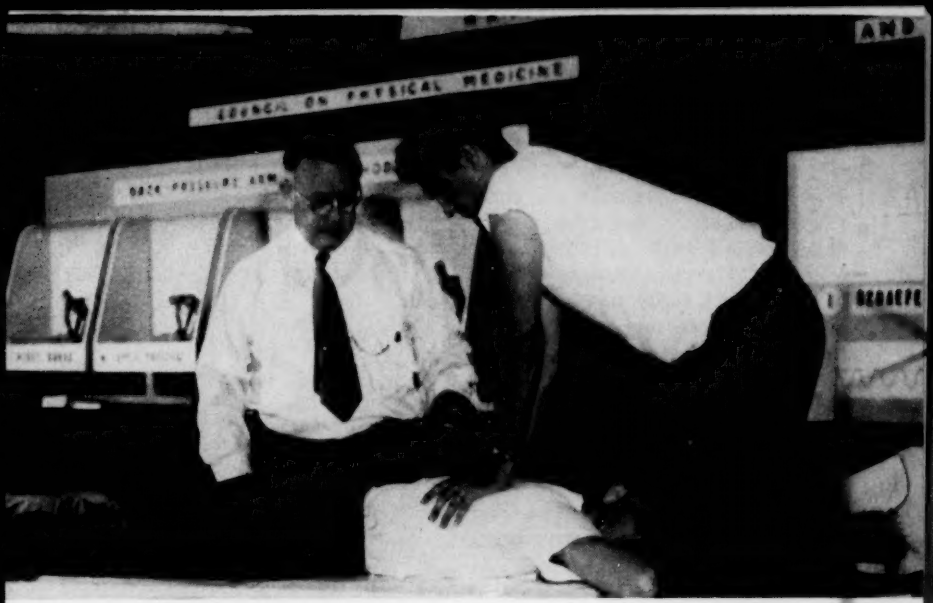
A RAPID, dependable form of vitamin K is now available for excessive prothrombin deficiency caused by anticlotting agents.

The oil-soluble preparation, vitamin K_1, is safely administered by vein as an emulsion, to counteract overtreatment with dicumarol, Tromexan, Phenylindanedione, and Compound 63.

Alfredo Rehbein, M.D., Alfred Jaretzki III, M.D., and David V. Habif, M.D., of Columbia University and Presbyterian Hospital, New York City, determined optimum dosage in treatment of 138 medical and surgical patients.

A dose of 50 mg. restores approximately normal prothrombin time in about six hours, regardless of the previous anticoagulant dosage or degree of hypoprothrombinemia. As a rule, no further antidote is required, and subsequent anticlotting therapy will have the customary effect. If unusual amounts of prothrombin depressant have been received, 50-mg. doses may be repeated several times at intervals of six to twelve hours.

The response of dicumarol-induced hypoprothrombinemia to vitamin K_1. Ann. Surg. 135:454-469, 1952.



Back-pressure arm-lift method of artificial respiration demonstrated

The AMA Sessions at Chicago

THE American Medical Association convention, now grown so large that few cities in the nation can house it, has long since become too vast for any one man to see as a whole. So, to different men, the world's top postgraduate medical institute is significant for different reasons.

Lectures, discussions, demonstrations, films, TV, and miles of scientific and technical exhibits at Navy Pier, Chicago, the second week in June, covered the entire range of medicine. There was something to interest every visitor, but none could see it all. Time and the limits of human endurance forced the doctor to pick and choose. And pick and choose the doctor did.

From the scientific assemblies he found answers to his questions about such new therapeutic agents as isonicotinic acid hydrazide for tuberculosis; he got new slants on perennial problems such as cancer and poliomyelitis; he picked up pointers on more effective technics in surgery; he added to his knowledge in such partially understood areas as the uses and limitations of ACTH and cortisone.

The interest of the majority of doctors, however, was concentrated in the scientific and technical exhibits which fronted on the four aisles, each stretching the length of Navy Pier more than half a mile over Lake Michigan. Satisfaction of this interest took its physical toll.

"For this I get my postgraduate degree," quipped one hardy practitioner, still able to joke after hours of walking on the concrete

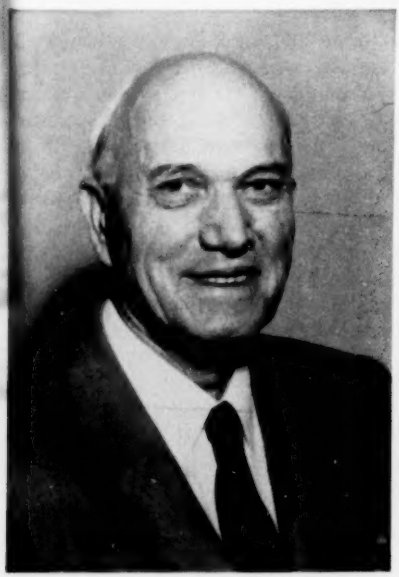
and steel floor of the pier. "It's a 'B.A.' for broken arches."

Some more adventurous spirits experimented with bicycles, roller skates, and even a motor scooter. Most of the 15,000 doctors at the convention, however, worked patiently up, down, and across the exhibit hall by foot, carefully studying the exhibits of their choice as they went.

They were well repaid, for here, gathered in one vast exposition, were the presentations of more than 1,200 physicians, giving the results of their latest research and demonstrating newest medical methods.

The exhibits on cardiovascular diseases were featured along with symposium exhibits on fractures, diabetes, and fresh pathology.

Dr. White with medal



Dr. Evans wins award

Many visitors added "spatial vectorcardiography" to their vocabularies after studying the splendid exhibits from Tulane and from Loyola.

Crowds always gathered for the demonstration of the new back-pressure arm-lift method of artificial respiration. Large numbers even postponed lunch to witness the lifesaving demonstrations each noon in the waters of Lake Michigan at the end of the pier.

A favorite of previous sessions, the exhibit symposium on overweight, continued to have wide appeal. The question and answer conference held in conjunction developed points of clinical import. Still to be found, however, is a way to lose weight by eating.

Gold medals were awarded to two exhibits. One went to John L. Madden, John M. Loré, Jr., and Frank P. Gerold of St. Clare's Hospital, New York City, for their exhibit on Surgical Anatomy of the Portal System for originality of investigation.

The second Gold Medal, "for excellence of correlated facts and presentation," went to Grace M. Roth, James T. Priestley, W. F. Kvale, N. C. Hightower, Malcolm B. Dockerty, and E. V. Flock of the Mayo Clinic, Rochester, Minn., for their exhibit on Pheochromocytoma, a Cause of Hypertension.

In the first category—called the Hektoen Medal—the Silver Medal was awarded John R. Haserick, A. C. Corcoran, Harriet Dustan, and Lena A. Lewis of Cleveland Clinic, Cleveland, for their exhibit on Systemic Lupus Erythematosus.

The Hektoen Bronze Medal went to Charles P. Bailey, Raymond C Truez, Armand W. Angulo, Hector P. Redondo Ramirez, and Nicholas Antonius of Hahnemann Medical College and Hospital, Philadelphia and St. Michael's Hospital, Newark, for an exhibit on Arteriolization of the Coronary Sinus.

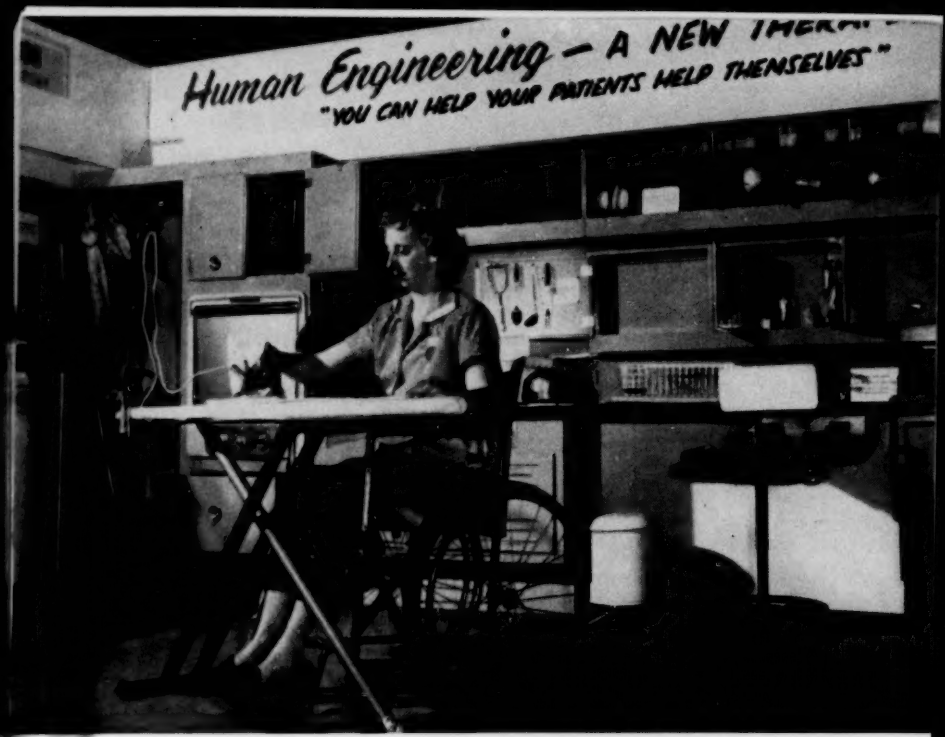
In the second category—called the Billings Medal—winner of the Silver Medal was Ernest Carroll Faust, Tulane University of Louisiana, School of Medicine, New Orleans, for an exhibit on Malaria.

Bronze Medal in this group went to Henry S. Ruth, Mary L. Buckley, and Kenneth K. Keown, Hahnemann Medical College and Hospital, Philadelphia, for their exhibit on Cardiac Asystole.

Crowds thronged around the TV receivers set up to get, by closed circuit, color telecasts of operations being performed at Wesley Memorial Hospital. These telecasts were made both morning and afternoon throughout the five-day session and never lacked viewers. A TV "first" was rung up, too, when an operation was televised "live" Tuesday night over a coast-to-coast network.

Dr. Paul Dudley White, Boston, was awarded the AMA Distinguished Service Medal and citation for his outstanding contributions in cardiology. Dr. White has trained physicians throughout the world. His book on heart disease is a recognized classic. Incidentally, the first "Special Article" to be published in *Modern Medicine* was written by Dr. White.

Dr. McVay, *new trustee*



Kitchen designed to enable handicapped women keep house

Dr. Herbert M. Evans, Berkeley, Calif., received the Passano award for his contribution to medical knowledge as exemplified by discovery of vitamin E, isolation of the pituitary growth-promoting hormone, and introduction of Evans blue, an azo dye.

Dr. Louis H. Bauer, Hempstead, N. Y., was installed as president of the American Medical Association in ceremonies that were broadcast over two national radio networks.

Dr. Edward J. McCormick, Toledo, was named president-elect. Dr. George F. Lull, Chicago, and Dr. Josiah J. Moore, Chicago, were reelected secretary and treasurer, respectively.

Dr. James R. Reuling, Bayside, N. Y., was chosen speaker of the House of Delegates, and Dr. E. Vincent Askey, Los Angeles, vice speaker.

Dr. Dwight H. Murray, Napa, Calif., was reelected to the board of trustees. Dr. James R. McVay, Kansas City, Mo., was elected to the board of trustees.

The next four conventions will be held in New York City in 1953; San Francisco, 1954; and Atlantic City, 1955.

More than 200 of the convention visitors found time to relax on the golf links. Dr. Charles Donatelli, Toledo, won the 1952 championship of the American Medical Golfing Association.

Mrs. Ralph Eusden, Long Beach, Calif., was installed as president of the Women's Auxiliary.

With attention to detail, radiologic diagnoses of nonvisualized gallbladders may approach 100% accuracy.

Nonvisualization of the Gallbladder

FRANCIS MARTIN, M.D., AND
ANTONIO G. MASSIMIANO, M.D.
St. Luke's Hospital, Pittsfield, Mass.

CHOLECYSTOGRAPHY is the roentgenologic demonstration of a physiologic process.

Attention to details of proper ingestion and absorption of dye will increase the accuracy of the roentgenologic interpretations of nonvisualized gallbladders. An understanding of the physiology of the biliary system is important and may reveal some nonpathologic causes for lack of visualization.

Physiologic stasis, with thick and concentrated bile, occurs if the patient has not been eating fat or if retention of food is impossible. During cholecystography, fresh, dye-laden bile is unable to reach the gallbladder, resulting in nonvisualization although disease may not be present.

To ensure an empty gallbladder and obviate nonvisualization, some fat should be allowed in the diet about six hours before taking the dye, state Francis Martin, M.D., and Antonio G. Massimiano, M.D. A careful check of the medications received by the patient is also advisable, since some drugs, such as narcotics, adrenalin, acetylcholine, eserine, histamine, Banthine, and nitrates may influence the physiology of the biliary tract.

When dye cannot reach the gallbladder because of severe liver disease or when obstruction of the hepatic or cystic ducts is caused by stones or tumors, nonvisualization results.

Dye will not be seen in the proper region if a cholecystic anomaly exists, such as situs inversus or absence or displacement of the gallbladder. A previous cholecystectomy may have been done, unknown to the patient.

When instructions are not well understood, the dye occasionally is not ingested or the fasting requirements not properly observed.

The dye is not properly absorbed from the small bowel if intestinal or pancreatic obstruction has occurred or when an active duodenal ulcer and hyperchlorhydria are present. Disease of the small bowel or too rapid passage of the dye through the small intestine in severe gastrointestinal upset or because of the improper use of laxatives results in poor absorption.

Repeat cholecystography should always be done after nonvisualization, since 82% of nonfunctioning gallbladders that come to operation contain stones and 93% have some

Nonvisualized gall bladder. New England J. Med. 246:488-490, 1952.

type of gross disease. However, if the patient has severe gastrointestinal symptoms, the repeat studies should be delayed until a quiescent period has been attained.

The remainder of the intestinal tract frequently must be examined with barium, and occasionally liver function tests are found to be necessary.

Waterproof Plaster for Support

M. C. COBEY, M.D.

Two materials, superior in many ways to ordinary plaster of paris, have been developed from resin and either glass cloth or plaster of paris. Both are waterproof, reports M. C. Cobey, M.D., of Georgetown University, Washington, D. C.

• Orthoply, a glass cloth–resin material, is used for shells, molds, casts, or jackets and is especially valuable to form molded splints for paralyzed intrinsic hand muscles after poliomyelitis or body jackets for growing children with scolioses or kyphoses. The child may even swim in the nonpadded jacket.

A plaster of paris mold is first made and filled to a ¼-in. depth with a substance called Orthoroc, which forms an accurate mold within fifteen minutes. The resin dope is then poured onto this mold, and two layers of glass cloth are fitted and rubbed into place. The new shell hardens rapidly and is finally stripped from the Orthoroc.

The shell is fitted to the patient with an elastic bandage or buckles and straps. This cast has a very accurate fit to the skin and is light and durable. The tensile strength can be controlled by the number of layers of glass cloth incorporated, 2 usually being sufficient.

• The second material is Melmac plaster, used in gluing plywood. The product eliminates the need for the intermediary mold required with Orthoply.

Plaster of paris mixed with a 30% solution of Melmac 405, activated by 3% ammonium chloride, produces a light, hard, thin, nonirritant cast, which is more than twice as strong as ordinary plaster of paris and dries as quickly. A cast of the material is extremely simple to form, requiring fewer rolls than ordinary plaster-of-paris casts because of the greater strength of the material.

The material is used for forearm or body casts, which may be bound with lacings or straps, or hip or frog-leg spica cases, put on as whole casts and bivalved, then reapplied with elastic bandage.

Waterproof plaster. Am. Surgeon 18:413-415, 1952.

Early stability and function in a fractured hip may be attained in selected cases by a prosthesis for the femoral head.

Prosthesis for Femoral Head

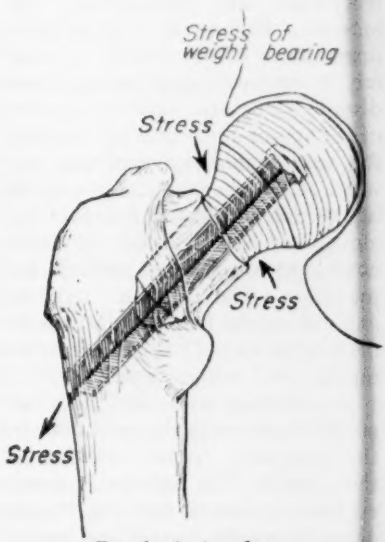
JAMES E. M. THOMSON, M.D.
Lincoln Orthopaedic Clinic, Lincoln, Neb.

FOR a painful, unstable fractured hip, particularly in elderly patients, a prosthesis for the head of the femur may restore function.

The light-bulb type of prosthesis used by James E. M. Thomson, M.D., is so named because of similarity in shape to an electric light bulb. The device permits distribution of the stress of movement and weight bearing over the neck along anatomic lines (see illustration). Implanting the end of the prosthesis in the lateral cortex at the proper angle affords stabilization.

The prosthesis is particularly advantageous in cases of old nonunion, with either a long or short neck, in fresh fractures unlikely to heal because of the patient's age and type of fracture, and in aseptic necrosis and hypertrophic arthritis of elderly people. Patients whose capsules have been removed have little pain on movement or weight bearing, which is usually tolerated in three to four weeks.

The ball head is 1½ in. across, with a ledge at the lower third. From this point the oval tapered neck, corresponding to the shape of the inner cortical portion of the femoral neck, extends for 1½ in. The total length of the prosthesis is 4 in. The acrylic portion is cast on a Vitallium or SMo steel triflanged nail, 3½ in. long, that protrudes from the slender ½-in. end of the plastic portion.



Prosthesis in place

A few months after insertion, roentgenograms reveal increased density at the margin of the acrylic, indicating greater bone strength and demonstrating the stability of the prosthesis. Vitallium prostheses have been used for young patients, instead of acrylic, since the

A prosthesis for the femoral head. J. Bone & Joint Surg. 34-A:175-182, 1952.

lasting qualities of the former metal have been demonstrated.

The patient, lying on the side opposite the affected hip, is held by a kidney rest, sandbags, or firm adhesive strapping of the trunk. The upper knee is flexed and the limb is adducted across the other extremity to bring the greater trochanter into prominence. The incision, begun at the anterior prominence of the greater trochanter, is extended longitudinally and distally along the anterior contour of the femur for 6 or 8 in., through the tensor fasciae latae, and upward above the trochanter and obliquely backward for 3½ to 4 in., along the cleavage line of fascia covering the gluteus medius and maximus. The gluteus maximus and the tensor fasciae latae are reflected backward, and the gluteus medius and minimus upward.

An incision is made from the acetabulum along the neck toward the trochanter to the insertion of the capsule. The capsule is resected from the acetabular attachments along the posterolateral and anterolateral portions.

With fracture of the neck of the femur, further flexion of the knee and external rotation of the limb turn up the fracture surface of the distal fragment of the neck, permitting dislocation of the head with a skid or a curved acetabular gouge.

For use of the prosthesis as a replacement in malum coxae senilis or aseptic necrosis of the femoral head, dislocation is done by the maneuvers described and the head is cut off transversely with a motor saw or wide osteotome. The osteotome is directed halfway through the neck from several angles to prevent shattering one side of the cortical portion of the neck. After removal of the head, the capsular remnant is distinctly identified and entirely removed.

The acetabulum is thoroughly cleansed of soft tissue and debris and, in elderly individuals, is completely reamed out to create a large deep seat for the prosthesis. This procedure is greatly facilitated by semicircular Gruca reamers with a one-way cutting edge.

The course of the prosthesis is determined by placing the end of the index finger under the femur below the greater trochanter and sighting for the proper angle. With a ¼-in. drill, the operator starts in the center of the cancellous portion of the neck and drills through the neck at an angle of 125 to 135°.

The reamed-out cancellous bone is collected and packed along the future course of the prosthesis to stimulate osseous growth.

After preparation of the bed or seat, the head of the prosthesis is held so that the wide part of the tapered neck is in line with the superior and inferior surface of the neck, and the narrow tapered portion is in line with the anterior and posterior surfaces of the neck. The prosthesis is pushed down until resistance is met in the firmer subcortical bone and is then impacted into the lateral cortex. The femur is replaced into the acetabulum with a skid.

The tendinous fibers of the gluteus minimus and medius are su-

tured into the original trochanteric insertion. Approximation of these sutures is facilitated by abduction of the extremity. The tensor fasciae latae is shifted forward and reapproximated by means of interrupted sutures. The skin incision is closed.

A well-padded plaster boot is applied and fixed to a posterior board with the extremity in internal rotation.

Subcutaneous tenotomy decreases adduction pull, as in long-standing deformity, and decreases the likelihood of dislocation of the hip.

Control of Bone Length by Staples

WALTER P. BLOUNT, M.D., AND FRANK ZEIER, M.D.

LINEAR or angular deformities of the growing leg may be corrected with epiphyseal arrest by stapling.

As a rule, the age limits are 8 to 15 years. Unsightly and only moderately disabling conditions should be remedied. If discrepancy in bone length of the limbs is increasing, a difference of ½ in. may warrant prophylactic measures.

Technics and effects of 117 operations performed on 90 patients since 1944 are summarized by Walter P. Blount, M.D., and Frank Zeier, M.D., of the Milwaukee Children's Hospital.

The most satisfactory staples are made in 2 sizes from 3/32-in. rods of stainless steel, specified as no softer than Rockwell, 33 to 35 C.

Smooth spear points are preferred to beveled ends.

Elongation of bone is almost completely stopped by wire across the distal femoral or proximal tibial epiphysis. Either 3 or 4 staples are inserted as a unit on each side, and angular aberration is counteracted by asymmetric placement.

Complex repairs may be undertaken, for example, after poliomyelitis has resulted in weak legs and a back-knee, knock-knee distortion on the long side. For firm compression, 4 staples are placed medially and posteriorly on the femoral condyle, and 1 staple is inserted laterally and posteriorly to allow for some expansion.

Wires can be left in place at least two years. After removal, growth is rapid for a few months, then continues at the normal rate. Overcorrection of angular deformities is advisable before removal of the staples to counterbalance the rapid growth immediately afterward. Epiphyseal closure of a stapled bone is several months premature.

Control of bone length. J.A.M.A. 148:451-457, 1952.

Central and cerebral lesions may require special examinations to elicit data for diagnosis.

Brain and Spinal Cord Surgery

ALFRED W. ADSON, M.D.
Mayo Clinic, Rochester, Minn.

BRAIN tumors, intraspinal tumors, protruded intervertebral disks, and some of the neuralgias, painful neuritides, and inflammatory lesions of the brain and spinal cord are amenable to surgical treatment.

Brain tumors—Tumors of the central nervous system are nearly as common as carcinoma of the stomach, colon, rectum, or breast. The growths may arise from any constituent of the brain or surrounding tissue.

Headache, usually occurring in the early morning and awakening the patient, projectile vomiting, and choked disk—signs of increased intracranial pressure—are indications of a growing brain tumor. Localizing signs from destruction of cerebral, nerve, or vascular tissue depend upon the area of involvement. A thorough chronologic history will aid in differentiating cerebral trauma and inflammatory and suppurative diseases from neoplasms.

Special examinations are necessary if routine procedures fail to yield definite evidence of the suspected lesion, according to the late Alfred W. Adson, M.D.

Use of pneumoencephalograms and pneumoventriculograms reveals any displacement or distortion of the outlines of the ventricles and the subarachnoid spaces. Electroencephalography indicates disturbance of brain waves by the neoplasm, and angiography discloses abnormalities of the cerebral circulation. Dyes with a special affinity for neoplastic tissue may be injected preoperatively for better visualization of infiltrating gliomas.

Spinal puncture studies are rarely used in cases of suspected brain tumor and never if signs of intracranial pressure are present.

Encapsulated and accessible tumors can usually be excised; the diffuse, infiltrating, and inaccessible lesion in a silent area can be removed by resecting the tumor and surrounding brain tissue. Usually the nonencapsulated tumor must be at least subtotally removed to avoid progression of existing paralysis. Decompression can be used as an auxiliary measure.

Intraspinal tumors and protruded intervertebral disks—Tumors originating from the spinal meninges, blood vessels, and nerve roots produce symptoms by pressure on the cord substance but do not invade the spinal cord. Removal can usually be accomplished and recovery then follows.

Pain, usually lancinating, either

Neurosurgical conditions of the brain and spinal cord. GP 5:45-54, 1952.

localized or extending over the involved nerves, appears in the first phase of spinal cord tumors. The pain is aggravated by the patient's coughing, sneezing, lifting, or straining at stool.

As the tumor enlarges, symptoms of cord compression develop. Sensory disturbances are gradual in onset and progress upward to a transverse level corresponding to the compressed cord segment.

The third symptomalogic phase consists of paralysis below the tumor level, caused by extreme compression of the cord. Sensory functions are entirely lost, trophic disturbances occur, and control of both vesical and rectal sphincters is lost. All reflexes are increased below the level of the lesion.

Protruded intervertebral disks are quite amenable to surgical treatment. Back pain, sciatic pain, and brachial neuritis are the usual symptoms, since protrusion occurs most frequently low in the lumbar and cervical regions. The lesions, which may develop without known trauma, are the result of a tear in the annulus fibrosus and a rupture of the intervertebral disk with an expulsion of a portion or all of the nucleus pulposus.

Lumbar spinal puncture is important in the diagnosis of intraspinal lesions. Manometric readings are done before fluid is removed, and Queckenstedt's test is done to determine the existence of an intraspinal block. A block caused by tumor will increase the globulin concentration of the fluid, which may also be xanthochromic. Pleocytosis can occur if the tumor is in the canal below the conus medullaris.

Roentgenograms of the vertebral column will reveal erosion secondary to direct pressure or invasion by a tumor. Roentgenographic examination after injection of 6 cc. of iodized oil into the subarachnoid space will show any lack of patency of the space because of a tumor or protruded disk. However, the oils irritate the meninges and should be used only when routine examinations, including neurologic study, have failed to reveal a suspected tumor or disk lesion.

Little is accomplished by surgery in primary lesions of the vertebrae and metastatic tumors causing compression of the cord. Herniated disks can be readily removed through a limited subtotal unilateral laminectomy.

Neuralgia and painful neuritides—Neuralgias of the trigeminal and glossopharyngeal nerves are the most frequent and most severe of all neuralgias. Pain radiates along the nerves, especially when the trigger zone is touched. Trigeminal neuralgia is permanently relieved by section of the sensory root of the gasserian ganglion, and glossopharyngeal neuralgia by intracranial section of the fifth and ninth cranial nerves.

Paroxysmal pain over the occipital area from involvement of the first and second cervical nerves characterizes occipital neuralgia. Intraspinal section of the sensory roots affords complete relief. The pain in sphenopalatine neuralgia is continuous and localized in the maxillary region with extension

along the upper four cervical nerves. Treatment does not offer great relief.

Postherpetic ophthalmic neuralgia is characterized by continuous pain in the area supplied by the ophthalmic branch of the trigeminal nerve. Avulsion of the supraorbital branches reduces the hypersensitivity of the forehead skin.

Pain from teeth and sinuses must be differentiated from these neuralgias.

Involvement of one or more thoracic nerves results in intercostal neuralgia, with a hypersensitive dermatome band extending from the vertebrae along the ribs to the sternum or midline below the sternum. The pain is similar but more severe with herpes zoster, and rhizotomy may be required for relief.

Causalgia after a crushing injury of the extremity may necessitate extensive resection of the sympathetic trunk or, sometimes, prefrontal lobotomy.

Inflammatory lesions—Operation for therapy of persons with inflammatory lesions is not employed as often as before the advent of antibiotics. Brain abscess can appear after cerebral injury, sinus or middle ear infection, or bony or pulmonary suppuration. Irritability, reduced cerebration, signs of meningitis or of increased intracranial pressure and, eventually, of local cerebral involvement occur. Epidural spinal abscess is rare, but early recognition and drainage are imperative.

Fatal Subarachnoid Hemorrhage

WEIR M. TUCKER, M.D., AND BERNARD J. ALPERS, M.D.

SUDDEN death may result from subarachnoid hemorrhage without accompanying cerebral or ventricular bleeding.

A typical case is reported by Weir M. Tucker, M.D., and Bernard J. Alpers, M.D., of Jefferson Medical College, Philadelphia. Death occurred thirty-five minutes after the first symptom.

A 54-year-old physician who had no known illness besides recurrent migraine became unconscious while straining at stool. Autopsy revealed an extensive subarachnoid hemorrhage at the base of the brain. No gross hemorrhage appeared in the brain substance. A small aneurysm, 7 mm., was found on the anterior communicating artery and a well-pronounced foraminal herniation. Coronary disease and pulmonary embolus were excluded as causes of death.

In another case, subarachnoid hemorrhage was noted at autopsy of a 58-year-old woman. Foraminal herniation was not found. As a consequence the cause of death in subarachnoid hemorrhage is not clear.

Subarachnoid hemorrhage as a cause of sudden death. Neurology 2:203-206, 1952.

When a needle is broken off in the lateral pharynx, the sooner steps are taken for removal, the better.

Broken Needle in Tonsillectomy

MARVIN J. TAMARI, M.D., AND EMIL H. BERGENDAHL, M.D.
University of Illinois, Chicago

A SHARP-POINTED foreign body, lost during surgery in the soft tissues near the great vessels of the neck, is a serious threat to the patient's life. Use of a Berman locator in such cases is advocated by Marvin J. Tamari, M.D., and Emil H. Bergendahl, M.D.

In tonsillectomies, the bleeding site at the tonsillar fossa is best handled by tying the vessel with a stitch tie, but in doing this the needle may break or be lost in the tissue of the lateral pharyngeal wall. When such an accident occurs, spot films should be obtained for localization, a member of the patient's family should be informed, and a specialist called for consultation. The needle may be aspirated into the tracheobronchial tree, be swallowed and perforate the esophagus, or cause terminal carotid hemorrhage.

Roentgenograms are valuable medicolegally, but give only reasonable localization, since the needle can move. Subsequent attempts at surgical removal may only traumatize tissue. Another needle, inserted as a marker for roentgen localization, is an additional hazard near the carotid artery.

The Berman locator is made of two probes that are connected by flexible cables to a power source and operates on an electromagnetic induction principle for detection and localization, but not removal, of the foreign body.

Localization is indicated on a meter on the panel unit or by a sounding apparatus. No metallic instruments can be used in the surgical field during the procedure. A wooden applicator may be applied to the point of greatest electrical stimulation, and the locator withdrawn, before removal is started with a mosquito hemostat. The sooner the problem is attacked, the better the chances for success.

Deschamps needle

To prevent the hazards of broken needles, all inexperienced operators should use a needle commonly employed in cleft palate surgery (see illustration). If broken, one end is tagged with the needle shank and the other with the suture passing through an eye in the point. When a loose surgical needle is employed, the holder should not be released until the point is secured with an alligator forceps.

Management of broken needles in tonsillectomy. Eye, Ear, Nose & Throat Monthly 31:196-199, 1952.

Often with lower as with upper respiratory obstruction, delay is a greater risk than tracheotomy.

Indications for Tracheotomy

HANS VON LEDEN, M.D.
Northwestern University, Chicago

IN many conditions causing obstruction of the lower respiratory passages, tracheotomy is beneficial if done before irreversible systemic changes have occurred.

Any interruption of the reflex arc of the cough mechanism results in rapid accumulation of secretions in the lower respiratory tree, with increasing obstruction of the airway. Coma or severe general debility, depression of the respiratory center in the medulla, anesthesia of the larynx, paralysis of the diaphragm and intercostal muscles, or fractures of the ribs or cervical spine may abolish the cough reflex. The tracheobronchial secretions are increased by the addition of aspirated nasopharyngeal and salivary secretions, feedings, and vomitus.

The accumulated material causes obstruction, edema, spasm of the bronchioles, and scattered areas of atelectasis, providing fertile culture media for bacteria and the development of pneumonia.

Systemically, the secretory obstruction of the respiratory passages produces anoxemia, hypercapnia, and acidemia—the components of asphyxia. The local and systemic effects are largely interdependent, rapidly increasing the asphyxia and eventually stopping respiration.

Administration of oxygen is important in the treatment of any respiratory disorder, but is of no assistance in reversing the hypercapnia and acidemia. The only valuable therapy is removal of the obstructing secretions and reestablishment of normal alveolar ventilation, states Hans Von Leden, M.D.

Bronchoscopic aspiration cannot be used for the critically ill or in severe forms of obstruction necessitating aspiration every fifteen to thirty minutes. Endotracheal intubation and aspiration require constant expert attendance and cause irritation of the pharynx and larynx when the tube is left in place for more than a short period. Therefore, tracheotomy should be done for the critically ill or when bronchoscopic aspiration provides only temporary relief.

The procedure is harmless in expert hands. Any upper respiratory obstruction is bypassed, easy and continued aspiration of the lower respiratory passages by untrained personnel is possible, crusts and tenacious secretion may be removed by irrigation, and exhaustion is relieved.

Newer indications for tracheotomy. Tr. Am. Acad. Ophth. 56:52-65, 1952.

A therapeutic tracheotomy is indicated for a patient with bulbar poliomyelitis if respiratory distress is shown by recurring episodes of cyanosis, moist râles, or laryngeal stridor. The operation becomes necessary when the patient cannot cough effectively or has pharyngeal pooling of mucus or prolonged stupor with aspiration of pharyngeal secretions. In tetanus, similar indications prevail, although repeated episodes of laryngospasm may add to the distress.

Early use of tracheotomy prevents pulmonary complications in injuries of the head and cervical spine and in crushing damage of the chest. To avoid fatal pulmonary complications, tracheotomy should be considered for any comatose patient with respiratory embarrassment.

Prophylactic tracheotomy immediately after operations on old and debilitated persons and after extensive neurosurgery or operations on the head and neck aids in preventing postoperative pulmonary disorders.

Ultrasonic Energy in Physical Medicine

AMA COUNCIL ON PHYSICAL MEDICINE
AND REHABILITATION

ULTRASONIC vibration is a promising new diagnostic and therapeutic tool, well worth further trial, but the agent should not be used indiscriminately.

The principal effect is heating of tissues. Though hundreds of patients have been treated without apparent harm, especially in Europe, the new method is extremely dangerous in inexperienced hands. Overdosage may result from apparatus in current use.

A small ultrasound generator with maximal output of 15 watts and a German type with 60-watt capacity were used in an investigation carried on by the Council on Physical Medicine of the American Medical Association.

Maximal dosages were tried on living animals, in most cases not more than 25 watts for thirty minutes. Radiation rarely exceeded even half the amounts available to physicians, yet many kinds of tissue were severely damaged. Particularly susceptible were the spinal cord, peripheral nerves, testes, growing bones, and hair follicles.

An additional risk was intensification of dosage by reflected rays. In a rat examined an hour after treatment with 20 watts for ten minutes, diffuse necrosis extending through the bowel wall was seen at the point where a gas bubble diverted ultrasonic energy.

Present status of use of ultrasonic energy in physical medicine. J.A.M.A. 148:646-651, 1952.

Uninterrupted bed rest often causes more severe and lasting damage than the original disease.

Deterioration of the Bedfast Patient

FREDERIC J. KOTTKE, M.D.
University of Minnesota, Minneapolis

TO prevent disability, early conditioning should be started when patients are confined to bed. In the program outlined by Frederic J. Kottke, M.D., the chief aims are to keep a full range of joint motion, preserve muscular power and endurance, maintain circulation and metabolic balance, and avoid ischemic ulcer.

Various measures may be helpful, including active or passive exercise, massage, electric stimulation, and mechanical devices such as an orthopedic bed, bars, weights, pulleys, and a mattress providing intermittent pressure.

Change in circulatory control and performance is the most startling form of deterioration. A few days in bed so affect the orthostatic reflexes that erect posture causes painful congestion of the legs and feet, vertigo, and fainting.

Myocardial power steadily decreases, and in three weeks the heart rate during moderate work is faster by 40 beats per minute. More than ten weeks of conditioning may be necessary for recovery. The circulatory reflexes can be preserved without undue strain by encouraging activity in bed and helping the invalid to sit and stand early.

Fibrotic deformity of muscles, tendons, and joints is more easily circumvented than cured. Contracture of idle parts may begin in four or five days and make serious inroads in three weeks.

Both good position in bed and activity are important. Muscle power is retained by a few strong contractions daily at maximal tension. Many contractions at 10 to 25% of strength are more useful in building endurance.

In a sagging bed, knees and hips become flexed, the back and shoulders rounded. Either a good felted mattress or a very firm innerspring type should be supplied and bedsprings replaced by a board ¾ in. thick.

To forestall foot-drop, the sole is placed against a solid board, perpendicular to the long axis of the leg. The footboard should be adjustable along the bed for people of varying height and also movable past the lower end, so that heels can extend beyond the mattress.

While the injured tissues are protected, other parts of the body are kept supple by calisthenics performed several times daily, for example, sit-up or push-up routines.

A trapeze suspended from a jury mast at the head of the bed not only exercises arms and shoulders

Deterioration of the bed-fast patient. Bull. Univ. Minnesota Hosp. 22:460-469, 1952.

but assists the patient to move about. Using a 4-ft. bar hung from a Balkan frame, the invalid swings himself from bed to wheel chair and back.

Suspension slings allow active assisted motion. Painful joints are partly supported for exercise by a Thomas caliper with Pearson attachment, counterbalanced or connected by pulleys to a hand grip.

The Balkan frame can be adjusted for any group of muscles with weights and pulleys. Difficult movement of hips and knees is facilitated by bed skates gliding on a powder board. If necessary, a trained therapist gently carries all joints through their range of passive motion twice a day.

When limbs are completely immobilized, voluntary muscle setting or contraction by electric stimulus is helpful. Daily massage reduces edema and keeps the tissues flexible. Early sitting and standing maintain orthostatic vascular reflexes, yet require less energy than digesting a meal.

Ischemic ulcers are most likely to develop among individuals who are unable to move or have areas of analgesia, as with extreme debility, paralysis, or use of casts and traction. To relieve constant pressure, the body should be turned at least once an hour.

A mattress containing 2 sets of thin plastic tubes is helpful in prevention of ulcers. Alternate systems are inflated in a five-minute cycle by an electric pump, to shift the weight-bearing regions.

From lesions already formed, pressure and wet or greasy dressings should be removed.

Seton Technic for Infantile Hydrocephalus

HENDRIK J. SVIEN, M.D., AND ASSOCIATES

ABNORMAL head enlargement in babies with communicating hydrocephalus may be controlled by establishment of a permanent drainage tract.

The seton procedure introduced by Hiller is simple and safe when major operation is not advisable. Using local anesthesia, a knotted silk thread is inserted into the lumbar subarachnoid space through a specially designed spinal puncture needle.

The needle is withdrawn, and the thread is cut off, leaving the end just below the level of the skin. Cerebrospinal fluid then flows from the caudal sac into adjacent soft tissues.

At the Mayo Clinic, Rochester, Minn., the technic was employed in 24 cases by Hendrik J. Svien, M.D., J. Grafton Love, M.D., Henry W. Dodge, Jr., M.D., and Haddow M. Keith, M.D. Accelerated head growth ceased in 9 instances.

Evaluation of "seton" procedure in the treatment of infantile communicating hydrocephalus. J. Pediat. 40:298-302, 1952.

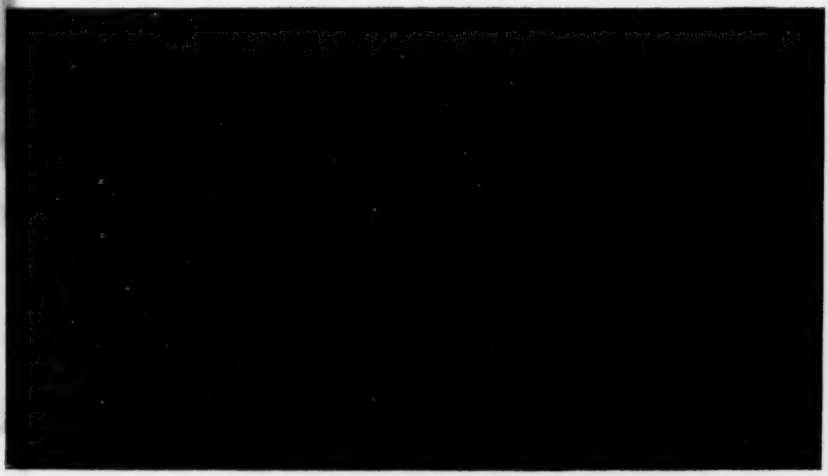
Later difficult operations can be averted if nose fractures are properly treated at the time of injury.

Management of Recent Nasal Fracture

SAMUEL FOMON, M.D., ALFRED SCHATTNER, M.D., JULIUS W. BELL, M.D., LOUIS KLEINFELD, M.D., AND RAPHAEL LEWY, M.D.

Willard Parker and Manhattan General hospitals, New York City

BEST results in treating nasal fractures can usually be achieved by open reduction, if the surgeon is experienced in rhinoplasty and has adequate facilities.



The open method is used for all nasal fractures in adults, except simple breaks involving only the osseous vault, by Samuel Fomon, M.D., Alfred Schattner, M.D., Julius W. Bell, M.D., Louis Kleinfeld, M.D., and Raphael Lewy, M.D. To avoid the hazards of prolonged anesthesia and because proper tools are lacking, closed reduction is employed for children.

Slight inaccuracies in reduction, including unlocked fragments of bone, minor malalignment, or overriding edges, considered negligible in other fractures, cause serious impairment of function and conspicuous deformity in the nose.

A comparison between closed

Management of recent nasal fractures. Arch. Otolaryng. 55:321-342, 1952.

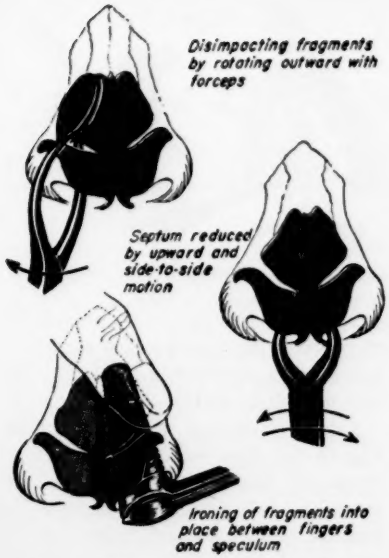


Fig. 1. Reduction by disimpaction

and open reduction is summarized in the table.

Since nasal fractures are always the result of direct violence, the fragments are usually locked or impacted and often compound. Nasal fractures should be considered emergencies, for delay may change a contaminated wound capable of being cleansed into an infected lesion that will heal slowly with extensive scarring and deformity.

The primary consideration in management is first-aid treatment, including measures for control of shock and hemorrhage, protection of the wound against further injury, relief of pain, and prophylactic inoculations.

Early reduction is essential for optimal healing. Blind reduction, however, using force in reverse of that which caused the fracture, often only aggravates the damage.

Closed reduction of simple vault fractures is best done by Walsham forceps as shown in Figure 1. If the parts do not fall into easy alignment, if the fragments can be held in position only with the aid of splints, or if the cartilages have been considerably damaged, open reduction is advisable.

After reduction of the bones, the cartilaginous skeleton is treated. Because of the firm attachment of the cartilage to the bone, the osseous reduction will nearly always bring displacements of the upper part of the cartilages into position.

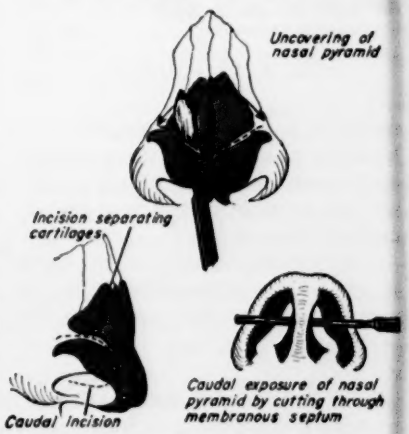


Fig. 2. Exposing nasal pyramid

If the septum is fractured, the upper fragment is pried into position and maintained by a suture. A septum which has slipped out of the groove may be rocked into position. Otherwise, reduction is best effected as illustrated in Figure 2.

Cartilages are never left for later

reduction; fibrosis will bind the cartilages down and make later readjustment difficult or even impossible.

Properly reduced fragments will

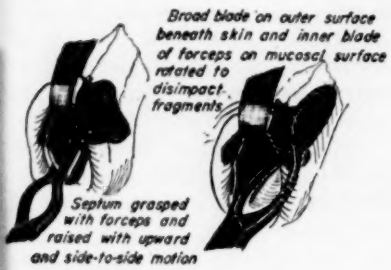


Fig. 3. Septal fracture

maintain position without support. Vaseline packs in the nasal fossae and a stent dressing are used to offset any possible disturbance or accidental trauma.

The mucosal lining of the nose is treated in accordance with the same principles that apply to the skin. The airway is meticulously inspected, lacerations are sutured, hematomas evacuated, and all raw surfaces skin grafted.

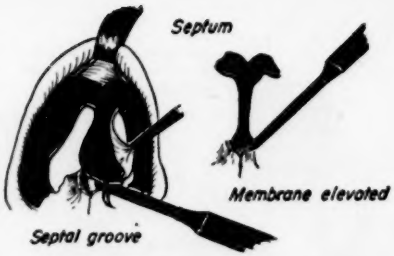


Fig. 4. Prying the cartilage

Open reduction is illustrated in Figure 3. The nose is aseptically prepared and anesthetized before start of reduction. The septum is treated as in a closed reduction. If any interference with alignment exists, one membrane is elevated and the displaced cartilage is brought back into position (Fig. 4). The membrane is sutured after reduction.

¶ ITCHING OF PRURITUS VULVAE is decreased if the affected area is dried three or four times daily by use of an electric fan. Itching and burning of the external genitals are common when *Trichomonas* or *Monilia* infection produces excess moisture. George N. Ballentine, M.D., of the Divine Providence Hospital, Williamsport, Pa., recommends a home procedure for drying the labia and perineum in conjunction with treatment of the cause of irritation. The patient lies in the lithotomy position with drapes arranged as on the examining table. An electric fan on a table at the foot of the bed is directed toward the perineum. The patient separates the labia as far as is comfortable so that the moving air may reach the innermost skin folds. This procedure is continued for fifteen to thirty minutes and repeated three or four times daily. Use of a fifteen- to thirty-minute sitz bath each day will aid in keeping the area clean. After gentle sponging by means of cleansing tissue, complete drying is done by the fan. The fan should not be set on the bed.

Am. J. Obst. & Gynec. 63:218, 1952.

Gynecic hemorrhage usually can be arrested by hormone therapy instead of surgery or irradiation.

Control of Functional Uterine Bleeding

ROBERT B. GREENBLATT, M.D., AND WILLIAM E. BARFIELD, M.D.
Medical College of Georgia, Augusta

COMBINED treatment with estrogen, progesterone, and testosterone reduces excessive functional uterine bleeding in more than 95% of cases. Bleeding from a malignant tumor or ectopic pregnancy must be excluded with utmost care.

Time is important, however, and while a diagnosis is sought, hemorrhage should be arrested as quickly as possible.

Each hormone has a special purpose. Estrogens are particularly useful when uterine hemorrhage is due to cystic glandular hyperplasia or a persistent estrogenic endometrium. Progesterone controls bleeding caused by an imperfect progestinal or mixed type of endometrium, and testosterone is effective in cases of uterine fibroids, adenomyosis, or endometriosis.

The 3 hormones administered together are more frequently effective than any 1 or 2 alone. The boon to the adolescent girl, formerly subjected to dilatation and curettage, is obvious. Mutilating operations, roentgen irradiation, and radium therapy are avoided, and young women are not deprived of child-bearing function.

Robert B. Greenblatt, M.D., and William E. Barfield, M.D., have employed gonadal steroids in 2 schedules with equally satisfactory outcome. In 20 cases, 1.66 mg. of estradiol benzoate or equivalent was combined with 25 mg. of testosterone propionate and 25 mg. of progesterone; in 37 other cases, 6 mg. of estrone was given with 50 mg. of progesterone and 25 mg. of testosterone.

Therapy is continued for five days, although bleeding usually ceases in six to forty-eight hours. From two to seven days after medication is stopped, withdrawal bleeding begins. The flow commonly resembles normal menstruation but may be excessive the first two days.

About twenty days later, another withdrawal period is induced by progesterone, taken by buccal absorption in daily doses of 30 mg. for five days. If preferred, pregneninolone is given orally in the same dosage, or 10 mg. of progesterone per day is injected intramuscularly for three days.

Progesterone may be continued at monthly intervals until basal temperature records indicate that cyclic ovulatory menses have begun. If spotting occurs between periods, 1.25 mg. of estrone sulfate may be administered for fifteen or twenty days before progestin therapy is started as outlined.

Hormonal control of functional uterine bleeding. Am. J. Obst. & Gynec. 63:153-157, 1952.

For treatment of severe bleeding, the initial combined dosage is doubled, and when the patient is seriously depleted, the withdrawal flow should be deferred for several weeks. In such cases, estrogen is given intravenously every four to six hours until hemorrhage stops, then in decreasing amounts for twenty-five days.

Human Male Fertility

JOHN MACLEOD, PH.D.

PROBABLY about 95% of cases of male infertility result from deficiencies in the male reproductive system causing oligospermia.

John MacLeod, Ph.D., of Cornell University, New York City, states that analysis of thousands of infertility cases has revealed no common factors responsible for oligospermia. Overt signs of endocrine or nutritional deficiencies are lacking. Some acute febrile diseases seem to depress the usual spermatogenic activity.

Semen quality can be divided into four categories: ejaculate volume, sperm count, motility, and morphology. Ejaculate volume is probably not specifically of major importance in most cases, although very high volumes are usually associated with the most infertile men.

Striking differences are apparent when sperm count levels are compared. Only 5% of fertile men have a count less than the critical 20 million per cubic centimeter. A count level of 20 to 30 million per cubic centimeter should be considered as the lower level of normal for impregnation. Therapeutic attempts to raise a sperm count of 20 million to 60 or 70 million are probably futile and unnecessary if the motility and morphology of the spermatozoa in the semen are good.

Febrile diseases in young adults temporarily reduce sperm count and motility and increase abnormal sperm. Such effects were observed in 2 cases for a month after recovery from chickenpox and for two and a half months after staphylococcal pneumonia.

At least three factors must be considered as possibly participating in the transient derangement in spermatogenesis. These are the febrile state, the effects of bacterial and viral agents, and the possible influence of antibiotics and other drugs used in treatment. The deleterious consequences of high body temperature upon the germinal epithelium of the testis are well known. As yet no specific antispermatogenic effects have been assigned to the bacteria and viruses responsible for these diseases or to antibiotics.

Certain concepts in human male fertility. J. Urol. 67:19-26, 1952.

Anastomosis of everted bladder to the rectum may permit the urinary tract to be kept permanently sterile.

Management of Exstrophy of the Bladder

WILLIAM H. BOYCE, M.D., AND SAMUEL A. VEST, M.D.
University of Virginia, Charlottesville

TREATMENT of congenital eversion of the urinary bladder with a defective abdominal wall should provide social acceptability and a normal life expectancy. An operative technic is described which diverts the urine into an isolated rectosigmoid without disturbing the lower ureters and ureteral orifices.

Previous types of ureterointestinal anastomosis involved mobilization of the ureters, often without isolation of the bowel segment. Some cicatrization usually occurred about the ureteral orifices, eventually resulting in ureteral obstruction and infection, with death from renal failure.

William H. Boyce, M.D., and Samuel A. Vest, M.D., leave the exstrophy undisturbed until the child is 5 to 7 years of age, when the psychologic impact begins to be apparent. Ascending pyelonephritis or cicatricial obstruction of the terminal ureters does not ordinarily occur before that age, and no evidence indicates that failure to excise the entire bladder before that time will result in malignancy later.

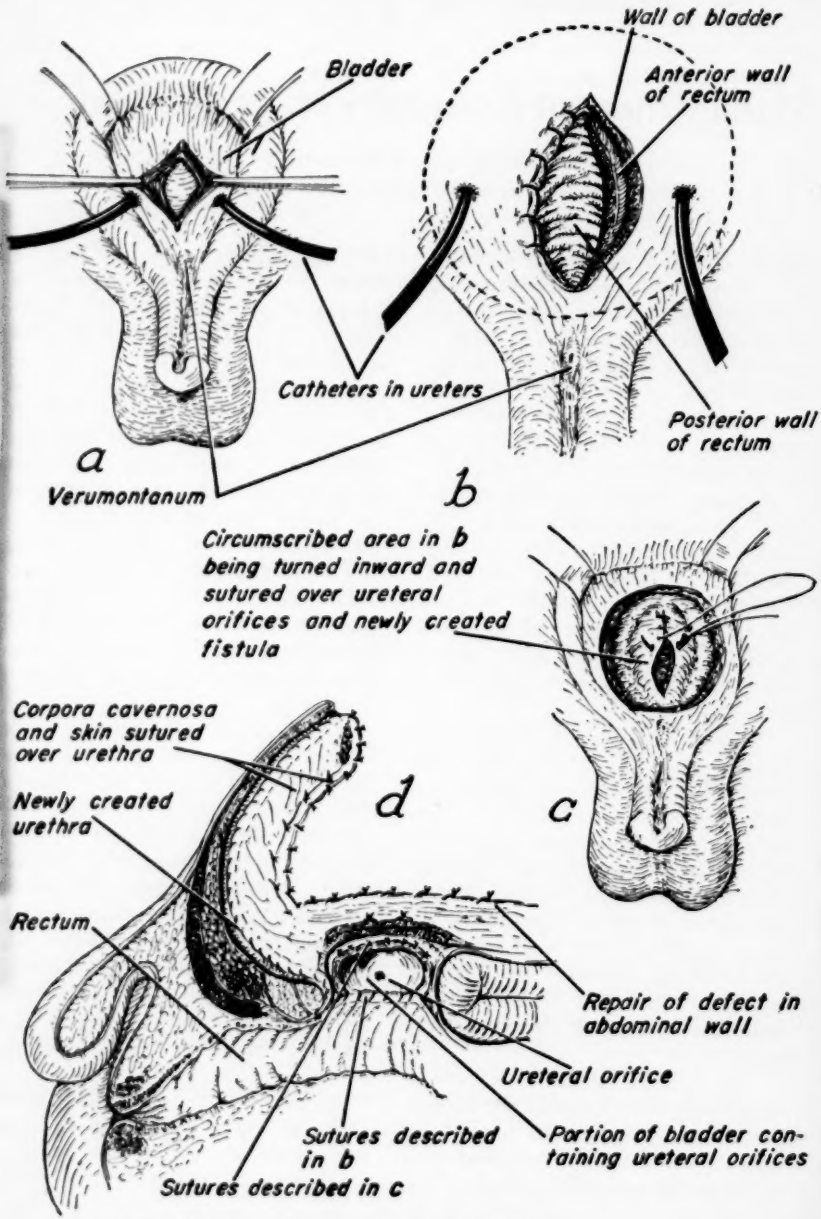
The first procedure is a permanent type of colostomy performed at the junction of the lower and middle thirds of the sigmoid with complete closure of the distal stump. Two weeks later an attempt is made to sterilize the blind rectosigmoid by instillations and enemas containing antibiotics.

At the second operation, a 4-cm. vertical incision is made through the middle of the bladder wall, dividing the trigone (Fig. *a*). The posterior surface of the bladder at the upper end of the incision is then sutured to the anterior surface of the isolated extraperitoneal rectosigmoid. A similar division is made through the anterior wall of the rectum, and a mucosa-to-mucosa anastomosis is made between bladder and rectum (Fig. *b*).

A wide circular incision is made around the edge of the lower bladder and upper trigone; the segment thus isolated is closed with a continuous suture of chromic catgut (Fig. *c*). The ureters and ureteral orifices are not disturbed. A fistula is thus established between the midtrigonal region of the bladder and the rectum. The rest of the bladder mucosa is excised, and the remaining muscular wall is sutured as a buttress over the newly formed miniature bladder.

A urethra is next constructed, using the mucosa on the floor of the epispadiac penis. This urethra

A new concept concerning treatment of exstrophy of the bladder. J. Urol. 67:503-517, 1952.


Wall of bladder
Anterior wall of rectum
Bladder
Catheters in ureters
Posterior wall of rectum
a
Verumontanum
b
Circumscribed area in b being turned inward and sutured over ureteral orifices and newly created fistula
c
Corpora cavernosa and skin sutured over urethra
Newly created urethra
d
Rectum
Repair of defect in abdominal wall
Ureteral orifice
Sutures described in b
Portion of bladder containing ureteral orifices
Sutures described in c

originates at the divided trigonal mucosa in the proximal prostatic urethra and terminates at the normal position. The corpora and skin are closed over the urethra (Fig. *d*). Ejaculation is then possible.

If the diastasis is not too wide, the abdominal defect can be closed by bringing the rectus muscles together. Flaps of external oblique fascia may be used as a buttress over the defect. If the abdominal defect is not large or the bladder has not herniated, the full thickness of the abdominal skin may be undercut and closed in the midline.

Since the procedure does not disturb the ureteral orifices or the intramural and terminal ureters and diverts the fecal stream, ordinary life expectancy is possible as far as the urinary tract is concerned. Antibiotics are continued for a short time postoperatively; urine remains sterile thereafter.

A permanent colostomy is more desirable than the hazard of upper urinary tract complications when feces and urine are mixed in the same reservoir. Since sphincteric control is by the rectal sphincter, urinary continence is normal.

¶ HERPES LABIALIS may be treated effectively with ordinary styptic. The pencil should be moistened and rubbed gently and thoroughly over and into the vesicular area as soon as the blister is noticed; 2 or 3 applications of the pencil are usually sufficient. Care should be taken not to overirritate by excessive rubbing. Jack C. Norris, M.D., of Atlanta finds styptic pencils containing 90% alum sulfate to be the most efficacious. If a secondary infection occurs, mild boric acid or aureomycin ointment is applied. Styptic application is not recommended for massive herpes resulting from sunburn or lesions that might be caused by chemicals or syphilis.

J.M.A. Georgia 61:135-136, 1952.

¶DERMATITIS HERPETIFORMIS may be effectively treated by Roniacol Tartrate. Although not necessarily superior to sulfapyridine for such cases, Roniacol Tartrate is recommended because toxic reactions are slight and the drug apparently does not depress the hematopoietic system. A preliminary report of 6 patients studied by O. S. Philpott, M.D., A. R. Woodburne, M.D., and J. A. Philpott, Jr., M.D., of the University of Colorado, Denver, indicates 25 to 100 mg. of Roniacol Tartrate taken orally four times daily to be an effective dose. The drug, like sulfapyridine and niacin, contains the pyridine nucleus, which seems to be the active radical in therapy of dermatitis herpetiformis. Roniacol Tartrate is a potent peripheral vasodilator, and patients should be warned of the flush often occurring after ingestion.

J. Invest. Dermat. 18:87-88, 1952.

Medical Forum

Discussion of articles published in MODERN MEDICINE *is always welcome. Address all communications to The Editors of* MODERN MEDICINE, *84 South 10th St., Minneapolis 3, Minn.*

Toxic Reactions to Local Anesthetics*

Comment invited from
Robert B. Orr, M.D.
I. E. Buff, M.D.
Frank C. Combes, M.D.
Lester C. Mark, M.D.
Robert B. Lewy, M.D.

► TO THE EDITORS: We agree with Drs. Max S. Sadove, Gordon M. Wyant, Lloyd A. Gittelson, and Henry E. Kretchmer that overdosage is responsible for most reactions to local anesthetics. Cullen has stated that 99% of these reactions are not allergic or anaphylactic in nature.

At the Lahey Clinic we frequently spray the patient's pharynx and larynx with a topical anesthetic agent, such as 10% cocaine solution, before an endotracheal tube is introduced. In the course of several thousand of these procedures, only 1 reaction was encountered; in that case the patient swallowed a large amount of the anesthetic agent which was rapidly absorbed from the stomach.

It should be emphasized that accidental injection of vessels or of the subarachnoid space is not necessarily prevented by aspiration tests, especially if a small-caliber needle is used. For example, in 1 case, 15 cc. of an anesthetic agent was injected into the subarachnoid space during an attempted stellate ganglion block, using the posterior approach. Careful and frequent aspiration tests were made, but no cerebrospinal fluid was obtained. Endotracheal intubation and artificial respiration with 100% oxygen were lifesaving in this case. This brings out another important point: Equipment for administration of oxygen and artificial respiration should always be immediately available during the administration of a local anesthetic agent. A barbiturate should also be at hand for intravenous administration to control convulsions.

As the authors point out, a distinction must be made between reactions due to the local anesthetic agent and reactions caused by vasopressor drugs added to the agent. This is especially true with dental anesthesia, for which a highly concentrated solution of epinephrine is usually employed.

The classification of reactions to local anesthetic agents given in the article is excellent and should be a valuable guide to treatment.

ROBERT B. ORR, M.D.
Boston

*MODERN MEDICINE, Mar. 15, 1952, p. 109.

► TO THE EDITORS: We believe that the patient's idiosyncrasy and not overdosage is responsible for most reactions from local anesthetics. Even from minute quantities of material, one may experience the most alarming of reactions. Most of these in our experience have had a most marked increase in pulse rate which developed with alarming rapidity.

By using Neostigmine, 0.5 mg. to 1 mg. subcutaneously or intravenously, we were able to stop the tachycardia and have a reversal of symptoms.

I. E. BUFF, M.D.
Charleston, W. Va.

► TO THE EDITORS: One cannot answer by an unequivocal "yes" or "no" the question, "Is a patient's idiosyncrasy or overdosage responsible for reactions to local anesthetics?" One could do so if he considered toxicity to a single anesthetic; but the number in use is so large and they vary so in chemical structure and activity that it is impossible to generalize.

What I refer to as the cocaine group includes, besides this alkaloid, alpha- and beta-eucaine. The former is much too painful for local anesthesia. Toxicity to this group is definitely on a dosage-size basis. Idiosyncrasy in my experience is rare. Of course, cocaine is not given by injection and the dosage should never exceed 0.1 gm.

Then we have the amino group of dialkyl amino alkanols. This includes procaine, butacaine (Butyn), Larocaine, Tutocain, Monocaine, Metycaine, and several others. My experience has been that most reactions to these agents have been on a basis of idiosyncrasy or extrinsic allergization. Most of these preparations on a dosage basis are more toxic than cocaine.

Another local anesthetic, dibucaine hydrochloride N.N.R. (Nupercaine) is an exceptional sensitizer; and 5 times as toxic on a dosage basis as cocaine. But since it is about 20 times as active a local anesthetic as cocaine, its dosage toxicity may be mitigated by using smaller quantities.

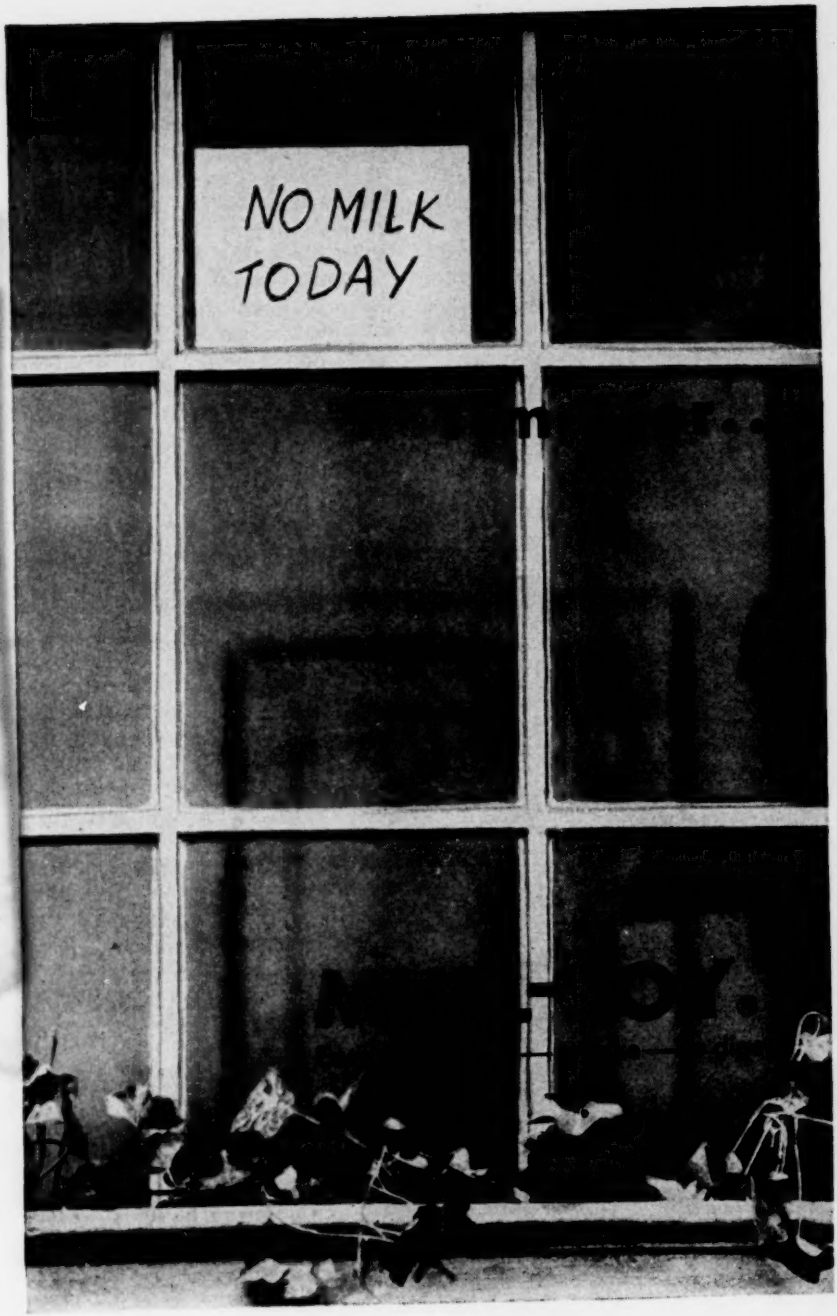
The alkyl esters of para-aminobenzoic acid are notoriously potent sensitizers and reactions to them are predominantly idiosyncratic. On the other hand, on a dosage basis, this alkyl group is increasingly toxic in the order methyl, ethyl, allyl, isopropyl, butyl, propyl, isobutyl, and amyl. Combinations are synergistic and reduce the danger of idiosyncrasy. I showed this in a preparation containing less than 1% of the ethyl and amyl esters (*New York State J. Med.* 48:2599-2600, 1948).

In general, the aminobenzoates are only about one-twentieth as toxic on injection as cocaine.

The aromatic and phenolic alcohols on injection are locally irritating and toxic on a basis of dosage and are not sensitizers.

There are other types of reaction to local anesthetics which, in view of our present knowledge, do not permit specific classification as to toxicity of dosage or idiosyncrasy.

FRANK C. COMBES, M.D.
New York City


NO MILK
TODAY

► TO THE EDITORS: Most anesthesiologists agree that overdosage causes nearly all reactions from local anesthetics; rarely is idiosyncrasy responsible. Since the plasma is the medium of drug transport to its locus of action in the body, overdosage must be evaluated in relation to the resultant plasma levels.

When local anesthetic agents are administered in the usual small amounts, "safe" plasma levels are achieved and no untoward effects are seen. Simple overdosage, as with massive local infiltration, may be expected to produce and sustain drug concentrations at toxic levels in the plasma.

Relative overdosage, however, is more important, since it probably occurs more frequently. Thus, with rapid absorption from a highly vascular area—as in the presence of inflammation—the resultant plasma levels may be sufficiently high to produce clinical signs of toxicity. The equivalent of rapid absorption, inadvertent intravascular injection, may similarly result in toxic plasma levels.

Rate of injection is important. A small "safe" dose of drug, injected with excessive rapidity, may produce temporarily high plasma levels; with accidental entry into a vessel, even minute quantities may suffice.

If these hazards are recognized and understood, local anesthetic drugs will be cautiously administered and untoward reactions minimized.

LESTER C. MARK, M.D.
New York City

► TO THE EDITORS: I doubt that the question of overdosage *vs.* idiosyncrasy can be resolved. We are dealing with a problem in which there are a series of unknowns. Protection should then be planned to prevent all deleterious factors from operating.

Drs. Sadove, Wyant, Gittelson, and Kretchmer have mentioned most of these. I would add: care in application of dose, so that cotton pledgets applied to mucous membranes are carefully wrung out, addition of small amounts of epinephrine to retard absorption, and proper psychologic and sedative conditioning of the apprehensive patient.

ROBERT B. LEWY, M.D.
Chicago

Surgical Treatment for Ménière's Disease*

Comment invited from
Edward H. Campbell, M.D.
George E. Shambaugh, Jr., M.D.
Franz Altmann, M.D.
D. D. DeWeese, M.D.
John R. Lindsay, M.D.

► TO THE EDITORS: I have read Dr. Samuel Rosen's recent paper on Ménière's disease and, during the past few years, have followed in some detail other articles of his on surgery of the temporal bone. From these observations and considerable experience of my own on temporal bone surgery and a moderate experience of surgical treatment of Ménière's disease, I am

*MODERN MEDICINE, Apr. 1, 1952, p. 111.

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not convinced that Dr. Rosen's operation is of any value. His concept that impulses arising in parts of the head such as the tongue and teeth and other areas may result in endolymphatic hydrops is by no means a definitely proved fact and certainly has not been accepted generally.

Perhaps some cases of tinnitus and vertigo can occur in some such way, but numerous other factors are concerned with Ménière's syndrome, so that relief could not possibly be given to any great proportion of such cases by the simple process of severing the chorda tympani nerve and the tympanic plexus. It is extremely difficult to estimate the results in any patient with Ménière's syndrome, as the attacks of vertigo and the exaggeration of the tinnitus occur at extremely irregular intervals and such symptoms may be entirely absent for many months.

It has been my policy to perform labyrinthotomy and destruction of the endolymphatic labyrinth only in extreme cases when conservative treatment has been entirely inadequate. I prefer the operation to expose the horizontal semicircular canal through a postauricular incision over the mastoid process with removal of sufficient mastoid cells. A fenestra is then made into the ampulla of the horizontal semicircular canal and the membranous labyrinth evulsed from this area by means of a small hook-like instrument. I prefer the evulsion technic to electrocoagulation because the latter usually results in the loss of hearing on the operated side, while the evulsion procedure frequently causes no further impairment of hearing than was present before operation.

Evulsion is a comparatively simple procedure which can be done quickly; the skin incision is closed completely. The destruction of the membranous labyrinth results in an obliteration of the vestibular response on the operated side and thereby relieves all vertigo associated with any pathologic condition of the labyrinthine mechanism. The tinnitus is not always relieved but is probably relieved in as high a percentage of cases as with the severing of the chorda tympani nerve and the tympanic plexus.

Considerable more observation and verification of the results obtained by Rosen's operation must be had before this method can be considered a logical procedure for Ménière's disease.

EDWARD H. CAMPBELL, M.D.
Philadelphia

► TO THE EDITORS: Ménière's disease is now known to be caused by a labyrinthine hydrops with increased endolymphatic fluid pressure affecting the cochlea with impaired hearing and tinnitus and the semicircular canals with attacks of vertigo. Labyrinthine hydrops is characterized by spontaneous fluctuations so that without therapy there is a tendency toward remissions. Results of therapy for the disease are, therefore, difficult to estimate.

The cause of labyrinthine hydrops is generally unknown. How-

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ever, in perhaps 10% of cases, a definite allergic factor can be demonstrated with control of the symptoms by allergic management. In cases without an allergic factor, medical treatment consists of limitation of fluid and sodium intake to lessen the increased endolymphatic fluid pressure. Vasodilators in the form of histamine and nicotinic acid have been helpful in some cases. Emotional factors also may be important and should be taken into consideration.

Surgical intervention is indicated only in the rare occasional case of unilateral involvement where recurring attacks of vertigo are incapacitating despite medical therapy. Surgical treatment consists in destruction of the labyrinth by means of the Cawthorne or Day procedure. We have used the Cawthorne procedure and have found it effective in all cases with no complications.

The semicircular canal is opened through an endaural incision; the endolymphatic labyrinth is identified and evulsed; the opening of the semicircular canal is packed with bone dust to close it and the incision is sutured without drainage. The procedure has the advantage over intracranial section of the eighth nerve in that it is relatively safer and involves considerably less surgical trauma. The destruction of hearing by the Cawthorne procedure is not important since this method of surgical treatment is done only in cases with severe unilateral loss.

GEORGE E. SHAMBAUGH, JR., M.D.
Chicago

► TO THE EDITORS: In my experience the best surgical treatment for Ménière's disease is, in suitable cases, coagulation of the labyrinth (Day) or evulsion of the lateral membranous canal (Cawthorne). In the few cases in which this procedure does not bring about a complete destruction of the vestibular part of the labyrinth, transtympanic labyrinthotomy (Lempert) should be performed.

Interventions on the sympathetic or parasympathetic system like those suggested by E. R. Garnett Passe or Rosen deserve great interest but only future observations will show whether these interventions are as successful as the authors hope.

FRANZ ALTMANN, M.D.
New York City

► TO THE EDITORS: Ménière's disease, not controlled by medical management, has been treated surgically for many years. The operation of Dandy of Johns Hopkins which consisted of sectioning the eighth nerve completely and, later, of selective section of the eighth nerve in an attempt to leave the cochlear fibers and destroy the vestibular fibers was perhaps the operation of choice. For several years, however, two other methods have been more commonly used.

The first is that of Cawthorne and Hallpike of England in which the labyrinth is opened and the horizontal semicircular canal and part of the vestibule are removed mechanically. The second is that of Dr. Kenneth Day of Pittsburgh

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in which the horizontal semicircular canal of the involved ear is opened—as in a fenestration procedure—and the horizontal canal and labyrinth are electrocoagulated with a very fine platinum needle. Dr. Day's attempt was to destroy the vestibular portion of the internal ear without damaging the cochlea.

Since this procedure has come into common use in this country, however, there have been some minor tragedies. Some men, in being somewhat vigorous with the electrocoagulation and coming too close to the facial nerve, have permanently injured that nerve, causing facial paralysis. In other cases, the facial nerve has been temporarily damaged.

I have done both the Hallpike and Day procedures and, in my opinion, the mechanical destruction of the labyrinth is to be preferred. By this I mean opening the mastoid, isolating the horizontal semicircular canal, and entering by making a fenestra with a motor-driven burr and then mechanically removing the horizontal canal and ampulla.

Dr. Meltzer of Boston has recently suggested that this can be done more adequately by using a small dental nerve hook to reach into the labyrinth and remove a greater portion of the vestibule. This makes sense to me, although I have not yet tried it.

A good deal of work similar to Dr. Rosen's has been done in the past, most of it by Dr. Julius Lempert of New York City. Others who have tried destruction of the tympanic plexus, which in itself is not too difficult a procedure in skilled hands, have been disappointed with its results in tinnitus and have abandoned it.

D. D. DE WEESE, M.D.
Portland, Ore.

► TO THE EDITORS: In unilateral Ménière's disease surgery is to be considered only when the various medical therapeutic measures have failed to prevent or reduce the disability consequent to the dizzy spells. In such cases the hearing is usually below the 50 decibel level.

If hearing is down to this extent, the other ear is normal, and a period of at least one and preferably more years has passed since onset, a destructive operation on the affected labyrinth seems advisable. This can be a conventional labyrinthectomy, Cawthorne's operation, Lempert's operation, or Day's operation. Day's operation has been safe in my hands but seems to leave a possibility of damaging the facial nerve by the coagulating current; therefore, I believe it is not entirely safe. Destruction of the sense organs by instrumentation or ablation appears preferable.

In bilateral Ménière's disease, operation comes into consideration only for relief of dizzy spells.

At the present time it is doubtful if any surgical procedure is to be recommended.

The use of streptomycin to reduce or damage vestibular function sufficiently to prevent spells of vertigo appears preferable to

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Fiberglas Cloth Gown Protects Radiologists Against Harmful Rays

Fiberglas lead-glass gown described here being worn by an X-ray technician.

According to long-term studies, leukemia has eight times the incidence among radiologists as among physicians in general.

Scattered radiation is suspected as a factor.‡ Arms, shoulders and lower legs are not adequately protected by the usual lead-rubber aprons, and one may speculate that continued slight radiological insult causes a leukemic condition among operators with delicately balanced hemapoietic systems.

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★ ★ ★ ★

‡Archer, Vincent W., M.D., et al. Protection Against X-ray and Beta Radiation—Lead Glass Fabric. J.A.M.A. 148:2 (Jan. 12, 1952), pp. 106-108.

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surgery. Streptomycin should not be used until nondestructive medical therapy has been tried.

SURGICAL METHODS

Operations which preserve the existing auditory function in the affected ear:

• Portmann's operation—opening and draining the saccus endolymphaticus. Results claimed by Portmann not generally confirmed by others. My experiments on monkeys showed that such an operative procedure is followed by healing of the surgical defect without demonstrable effect on the vestibular or cochlear labyrinth (*Arch. Otolaryng.* 45:1-13, 1947). This has recently been confirmed on sound-conditioned cats, in which auditory function was not disturbed by the loss of the ductus and saccus endolymphaticus.

• Intracranial section of the vestibular nerve has been used successfully to terminate dizzy spells while preserving the existing hearing. A recent report by Green and Douglass (*Ann. Otol., Rhin. & Laryng.* 60:610-621, 1951) showed that hearing was absent after operation in 18.8% and worse on subsequent examinations in 48.5%. Permanent facial paralysis occurred in 1.7%. Tinnitus ceased in only 26.8%. In view of these figures it seems that the results scarcely warrant the risk entailed in the intracranial operation.

• Sympathectomy. See E. R. Garnett Passe, *Proc. Roy. Soc. Med.* 44:760-772, 1951 (Section on Otology, pp. 18-30). The removal of the stellate ganglion and, more recently, a sympathetic block of the cervical sympathetic by injection of novocain.

The surgical procedure is based on two assumptions: [1] that hydrops of the labyrinth is due to an autonomic imbalance which can be corrected by sectioning or blocking the sympathetic supply to the inner ear and [2] that such an effect can be produced by the operation in question.

The source of the sympathetic nerve supply to the inner ear has not been clearly shown. Nerve fibers have been observed in the modiolus (Polyak) which are believed to belong to the sympathetic system but the route by which they reach the ear is not yet clear. If they follow the vertebrals and the basilar artery there is still a possibility of a bilateral innervation. Attempts at demonstrating an effect on the inner ear when the cervical sympathetic nerves or ganglia are stimulated in the neck have not been conclusive. A recent report that cochlear microphonic potentials were lowered by stimulation of the cervical sympathetic chain must be confirmed before acceptance (*Proc. Roy. Soc. Med.* 44:755-759, 1951). The failure of two other laboratories to confirm these results supports this view.

The results of this surgical procedure in the treatment of vertigo and auditory disturbances characteristic of Ménière's disease will require more time for evaluation.

• Surgical division of the chorda tympani nerve (Rosen) is apparently based on an idea that afferent nerves in the chorda tympani exercise some autonomic control over the vascular system in the inner ear. This method, which is suggestive of Lempert's operation for tinnitus, might be expected to be ineffective as a relief for tinnitus since the general experience with Lempert's operation for this purpose seems not to have been satisfactory. I have not been able to find any anatomic observations that would lend support.

No evidence has been presented that afferent fibers in the chorda tympani or Jacobson nerves have any relation to the autonomic supply of the labyrinth.

The chorda tympani nerve is customarily severed in the complete radical mastoidectomy operation. I have observed active Ménière's disease in such cases after the chorda tympani nerve was destroyed.

None of the above methods has been found to give more than tem-

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porary relief from tinnitus, often an aggravating symptom of this disease.

Operations which prevent the dizzy spells but also destroy hearing:

- Section of the eighth nerve has been unsatisfactory because of the high percentage of facial paralysis, the failure to relieve tinnitus in a considerable percentage, and the risk entailed in an intracranial operation.
- In alcohol injection of labyrinth, facial paralysis has been reported.
- Any conventional labyrinthectomy operation may be used to destroy vestibular and auditory function.
- Labyrinthotomy and coagulation of labyrinth (Day's method) was used originally with the hope of preserving hearing while preventing attacks of vertigo. An occasional patient has had facial paralysis probably because of failure to exercise caution in the application of the coagulating current. Occasionally hearing has been preserved but in such cases the tinnitus sometimes warrants a more radical destruction of the sense organs.
- Labyrinthotomy through ampulla of the horizontal semicircular canal and ablation of the membranous canal and ampulla (Cawthorne's method) are in use.
- Lempert's method of opening the cochlea and vestibule by way of the two windows is a destructive operation designed to improve tinnitus as well as destroy function.

JOHN R. LINDSAY, M.D.

Chicago

Carcinoma of the Bladder*

Comment invited from Eastwood Landa, M.D.

► TO THE EDITORS: I have followed Dr. Hugh J. Jewett's work for a long time, and the article on bladder carcinoma is another of his well-written papers.

Our most glaring errors are still made because the practitioner does not pay sufficient heed to hematuria. If we, as urologists, could only convince him that *every* case of blood in the urine, especially a microscopic hematuria, requires careful urologic survey, many bladder cancers would be studied early. Unfortunately, this is not the case. In our own practice the majority of patients come too late.

I am most disappointed in deep therapy as treatment for these tumors, and the application of radium has made both myself and the patient very unhappy. It cannot be too strongly stressed that bladder neoplasm should not be treated until a very careful bimanual palpation has been done under anesthesia and a careful biopsy of the tumor and muscle tissue obtained.

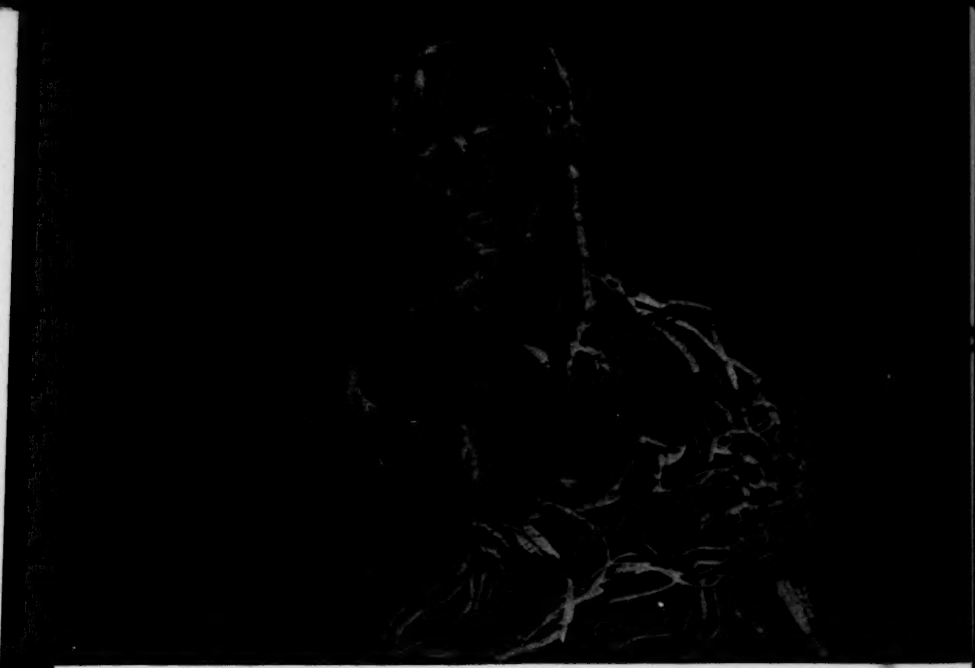
The type of tumor that responds to total cystectomy with transplantation of the ureters would also respond to transurethral excision and fulguration or to segmental resection. This is very important, because one would hesitate to offer radical, mutilating surgery, involving destruction of function, postoperative disability, morbidity, and mortality, for a condition which could be solved in a very simple and direct way without these side effects.

The last word has not been said about cystectomy. In my own experience, a simple resection and transurethral excision and fulguration have given better survival rates and happier patients.

EASTWOOD LANDA, M.D.

Vancouver

*MODERN MEDICINE, Sept. 15, 1951, p. 65.



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How Peritrate differs from other drugs.

Peritrate's clinical superiority for prophylaxis in angina pectoris is related to its chemical similarity to nitroglycerin but, unlike nitroglycerin, Peritrate is slowly absorbed (1 to 1½ hrs.) and long-lasting (4 to 5 hrs.). It has a 5-carbon "branched chain" structure, not the "straight chain" of older vasodilators.

Dosage: 1 tablet 3 to 4 times daily, on a continuing schedule. Available in 10 mg. tablets in bottles of 100 and 500. Literature and samples on request.

References: Angiology, (Feb.) 1952 . . . 1. Winsor, T. and Humphreys, P., p.1, 2. Perlman, A., p.16, 3. Samuels, S. S. and Padernacht, E. D., p.20.

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Diagnostix

Here are diagnostic challenges presented as they confront the consultant from the first clue to the pathologic report. Diagnosis from the Clue requires unusual acumen and luck; from Part II, perspicacity; from Part III, discernment.

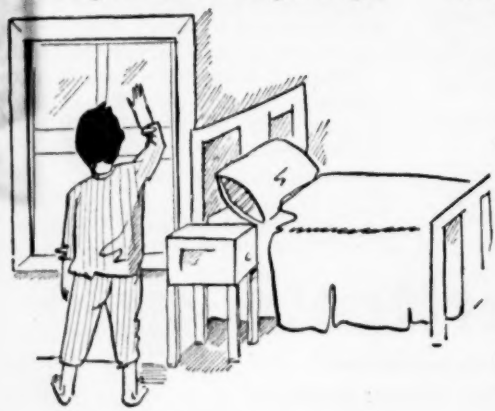
Case MM-218

THE CLUE

ATTENDING M.D: In the pediatric ward we have a 7-year-old boy with a convulsive disorder and the typical epileptic personality. He was brought here as a behavior problem.

VISITING M.D: What is "the typical epileptic personality?"

ATTENDING M.D: Oh, you know, irritable, irascible, mean, selfish. He's had spells of a peculiar nature for one year. The brain waves revealed an atypical petit mal pattern of diffuse dysrhythmia. The neurologic examination was entirely normal. I saw the boy in my office for the first time standing before the window staring out and waving his right hand up and down in front of his eyes. He wouldn't respond to me for about a minute.



PART II

VISITING M.D: *(They enter the ward. The boy is standing beside his bed transfixed and waving his hand before his eyes as he stares out the window.)* A typical case of flicker sensitivity, of light-induced epilepsy. By waving his hand he manages to induce a light flicker which precipitates a petit mal seizure. This usually has a pleasurable element which causes the child to repeat the performance, especially when under tension. Now what about the behavior difficulty?

ATTENDING M.D: The boy's teachers say it is impossible to make him obey. He is defiant, has frequent temper tantrums, swears, tries to retaliate, is the typical bad boy.

VISITING M.D: *(Looking at patient, a keen-looking child with sparkling gray-green eyes and red hair)* With a winning way and smile, eh?

ATTENDING M.D: If you look at it that way.

VISITING M.D: A complete history of seizures, please.

effective in 6 out of 7 cases of functional vomiting[1] . . . reduces gastrointestinal smooth muscle contractions physiologically . . . contains no antihistaminics, barbiturates, or other drugs . . . also useful in nausea of pregnancy, and for drug- or anesthetic-induced vomiting

1. Bradley, J. E., et al.: J. Pediat. 38:41, 1951; Idem: Amer. Acad. Pediat., meeting Oct. 16, 1951.

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ATTENDING M.D: He was cyanotic at birth for about forty-eight hours. The first spell began at 2 years of age and was a tonic fit lasting about five minutes. He had an unexplained fever of 103° at the time. From the ages of 2 to 6 the seizures recurred about five times, then ceased. From 6 to 7 the light-induced spells became manifest. He never had a grand mal seizure. The tonic spells sometimes lasted only moments; he didn't always fall. He was given Dilantin a year ago and the spells became more frequent. Then he was given Tridione, which seemed to reduce them. An air encephalogram was made last week which revealed normal configuration of the brain with good ventricular filling. The neurologic diagnosis was convulsive disorder from an unknown cause.

PART III

VISITING M.D: The only clue we have is early anoxemia . . . the cyanosis at birth. But we haven't answered the questions which caused his parents to bring him here: Why is he a problem at school and is this related to the frequency of spells? Is there an emotional component? Let me talk to the parents and the boy.

PART IV

VISITING M.D: *(Attending M.D. and Pediatrician meet in the Visiting M.D.'s office the next day.)* This would seem to be a clear-cut case of convulsive disorder, but emotional problems are probably responsible for some of the

The Case of the GHOST IN WARD 4

IT has become increasingly evident that many patients who are allergic to one substance are allergic to other substances in varying degrees. These substances may be mild allergens which precipitate acute attacks due to a more potent sensitizer, or they may maintain a symptomatology in reduced degree. This fact may explain in part why certain seasonal allergies seem intractable to treatment. For example, a desensitization regimen to short ragweed may be vitiated because the patient is allergic to certain house dusts, even though the dust allergy never manifests itself, except in the presence of the ragweed potentiator, and vice versa.

This fact has helped us to ameliorate acute seasonal attacks of vasomotor rhinitis that formerly seemed intractable to all treatment. To illustrate, let me tell the story of the Ghost in Ward 4.

The "Ghost" in this case was a name given to herself by as fine a nurse as one would ever hope to meet. Her one great unhappiness was that during the pollenizing months she suffered severe attacks of hay fever. Flowers seemed to throw her for a loop. Of these, the most severe was Gardenia. Just one whiff of a Gardenia would produce a paroxysm within fifteen minutes. Other flowers produced milder symptoms.

Basing our approach on the theory of osmyls, as described by Uhrbach, we made a chance suggestion that perhaps odors, particularly floral odors, might be responsible for part of her difficulty. In this process, we suggested that she stop using all cosmetics for the period as a test to determine whether she was sensitive in any degree to the odors of flowers.

This test was both interesting and somewhat conclusive. When Miss M. omitted cosmetics, she was not affected at all by most floral odors, and only slightly by the odor of Gardenias. Her only complaint then was that without cosmetics she "looked like a ghost."

The remedy in this case was quite simple. We recommended that she try AR-EX Unscented Cosmetics. These cosmetics have the same fine qualities as other cosmetics, except they contain no perfumes or essential oils, and are quite free of any floral scents. Much to her happiness, Miss M. found the AR-EX Unscented Cosmetics both fashion fresh and for her, safe to use without reaction.

Because the sensitive nasal mucosa of hay fever sufferers is easily irritated, your medical detective has since always recommended to seasonal vasomotor rhinitis patients that they use only unscented beauty aids during periods of possible attack.

THE MEDICAL DETECTIVE•

child's seizures and are of vast importance to his becoming a well-adjusted child. These factors I should say are of greater significance because of his epileptic handicap. What do you know of the family history?

PEDIATRICIAN: His father died when the boy was 2½ years of age and the mother remarried. There was a normal development history. The stepfather was never allowed to punish the boy. The child often calls the doctor "daddy."

VISITING M.D: Yes, he called me "daddy" twice. When his father died suddenly of coronary occlusion he was not told of the death on the mistaken advice of a physician, who feared it would make the seizures more frequent. On his fifth birthday he was finally told of the death, but didn't seem disturbed, so it was never mentioned again.

PEDIATRICIAN: Should it be?

VISITING M.D: Of course. The boy was not satisfied by the simple telling, he has many unasked, probably disguised, questions. If the older people are reluctant to talk about it, how much more afraid he is! The school is a rigid, regimentalized affair, and he has a strict man teacher who ridiculed him last year in front of the class when the boy inadvertently called him "daddy" one day. See that the boy gets psychiatric treatment. Help the parents on the level of advice and don't get them into any deep therapy until we know more. The boy's behavior disorder is going to improve greatly.

Our Office Nurse

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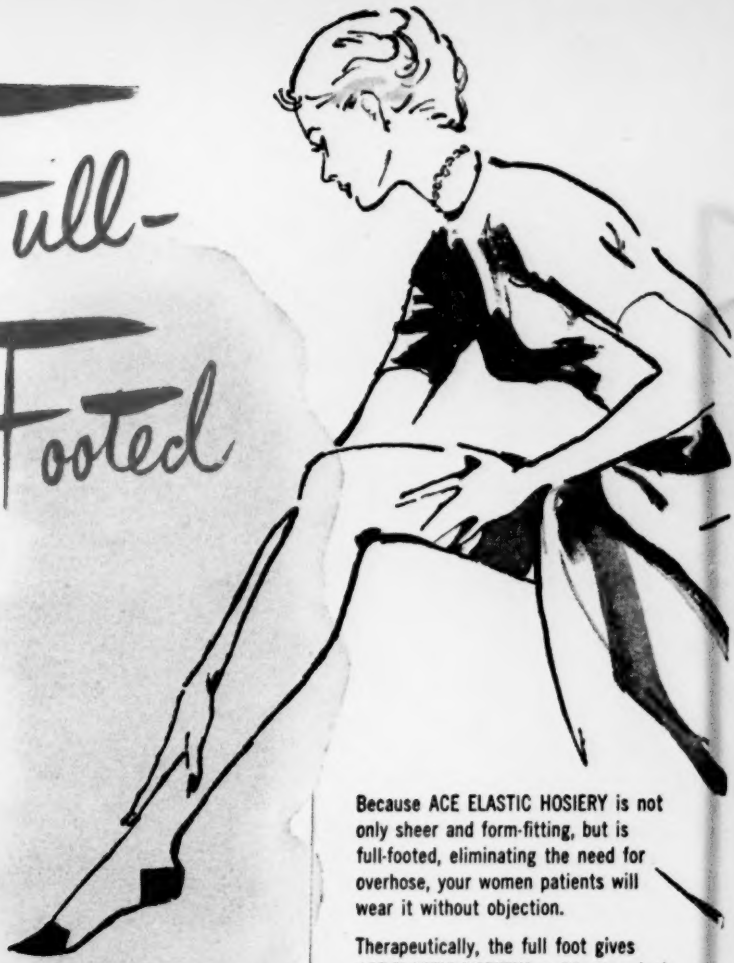

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Basic Science Briefs

Virology

Poliomyelitis and Cortisone

Infection of Syrian hamsters with poliomyelitis is enhanced by cortisone. Symptoms are worse, the incubation period is shorter, survival time is much reduced, and mortality higher. The larger the dose of hormone, the smaller the amount of virus required to cause disease. Dr. Gregory Shwartzman and Alice Fisher of Mount Sinai Hospital, New York City, find that severe illness and many deaths are produced from weak organisms with 2 or 3 mg. of cortisone. However, animals from various sources respond differently, and in one breed Lansing infection is not altered. Poliomyelitis is apparently unaffected by other hormones such as progesterone, DCA, and ACTH.

J. Exper. Med. 95:347-362, 1952.

Experimental Medicine

Nonspecific Immunity

Injection of a histamine-liberating agent such as peptone facilitates release of histamine from the lung by another agent such as trypsin. In addition, tolerance to the adverse effect of histamine is raised. If histamine release is an index, altered reactivity to other liberated substances may account for the more serious course of infectious diseases in adults than in children. Reactions of guinea pigs to diphtheria toxoid were investigated by Drs. E. R. Trethewie and Fay M. Gaffney of the University of Melbourne, University of Adelaide, and Institute for Medical and Veterinary Science, Adelaide, Australia. Animals given 5 weekly doses of formolized toxoid survived subcutaneous injections of histamine that were fatal to more than half the unprotected group. Histamine content of the lungs was 24% greater in treated subjects.

Australian J. Exper. Biol. & M. Sc. 29:315-319, 1951.

Biochemistry

Gastric Inhibitor

Acid secretion by the stomach of dogs is lowered for at least three hours after intravenous administration of hexamethonium. Doses of 4 mg. per kilogram were administered by Drs. M. I. Grossman and C. R. Robertson of the University of Illinois, Chicago, following stimulation by Urecholine or by histamine. Function was depressed in vagally innervated animals with gastric fistulas and to a lesser degree in denervated animals with stomach pouches. The blocking effect after vagal denervation was probably due to suppression of acetylcholine synthesis still carried on by postganglionic fibers of the vagal nerve.

Proc. Soc. Exper. Biol. & Med. 79:226-227, 1952.

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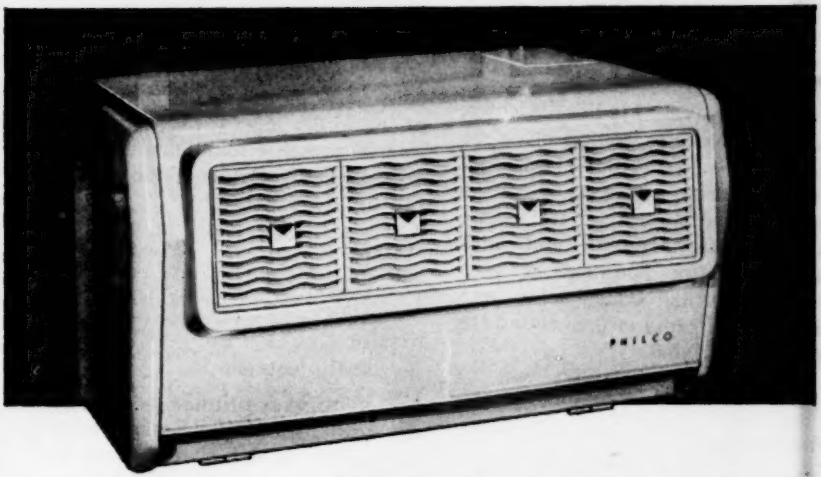

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Hematology

Radiation and Hemorrhage

Prolonged clotting time after heavy irradiation is due to reduction of blood platelets by injury to bone marrow. In dogs exposed to 600 r, no evidence of a circulating anticoagulant could be found. Dr. D. P. Jackson and associates of the National Naval Medical Center, Bethesda, Md., examined blood of 10 animals by Conley's test and with heparin-protamine titration methods, but no special tests were done for antithrombin and antithromboplastin. Spontaneous purpura, abnormal coagulation, and thrombocytopenia were found to be closely related.

J. Lab. & Clin. Med. 39:449-461, 1952.

Pharmacology

Vasoconstrictor of Serum

The partially purified serum vasoconstrictor, serotonin, has pharmacologic properties which indicate that the substance is an indolalkylamine similar to tryptamine. Serum vasoconstrictor is probably located in the platelets, since platelet-rich serum yields highly active preparations of serotonin and platelet-free serum is devoid of vasoconstrictor activity. Serotonin is a vasoconstrictor and a pressor, resembling the sympathomimetic amines. Like histamine, serotonin is a bronchoconstrictor. However, pupillary constriction and smooth muscle contraction as produced by serotonin are not characteristic of the action of the sympathomimetic amines or of histamine. Histamine does not resemble serotonin in vascular effects. Drs. G. Reid and M. Rand of the University of Melbourne, Australia, find that stimulation of the adrenal medulla is the only action of serotonin not exerted also by tryptamine, though this action is said to be exhibited by some derivatives of tryptamine. The physiologic significance of serum vasoconstrictor is not known. Whatever part the agent may have in arterial pressure maintenance probably results from local action at the site of liberation.

Australian J. Exper. Biol. & M. Sc. 29:401-415, 1951.

Hepatology

Serum Cholate in Hypercholesteremia

The liver, as a primary or secondary agent, should be considered in evaluation of the pathogenesis of human hypercholesteremia. Hypercholesteremia is associated with an increase in cholate concentration. Dr. Meyer Friedman and associates of Mount Zion Hospital and the Harold Brunn Institute for Cardiovascular Research, San Francisco, found that a correlation existed between serum cholesterol and serum cholate in 25 healthy subjects. In 33 patients with diseases such as myocardial infarction, nephrosis, xanthoma, diabetes, and hypothyroidism which have elevated cholesterol levels, this relationship also held true. Thus, hypercholesteremia may be a phenomenon secondary to an initial derangement of cholate metabolism. A metabolic relation is thought to exist between bile salts and cholesterol.

Science 115:313-315, 1952.

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1. Reported at the 41st Annual Meeting of the American Society for Pharmacology and Experimental Therapeutics in Cleveland, Ohio; Federation Proceedings, Vol. 10, March 1951, p. 490.
2. Weiss, A. and Feldman, D.: A Heart Muscle Extract in the Treatment of Cardiovascular Disease, J. Lancet (August) 1951, pp. 320-322.
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Short Reports

Oncology

Carcinostatic Agents

Significant inhibition of mouse mammary adenocarcinoma results from chemotherapy with flavotin, a riboflavin antagonist. When flavotin is combined with 8-azaguanine, carcinostasis is enhanced, report Drs. Ruth A. Fugmann and Daniel M. Shapiro of Columbia University, New York City. Potentiation of 8-azaguanine effect is also noted in desoxypyridoxine-8-azaguanine chemotherapy. Apparently, the efficiency of tumor therapy is increased when carcinostatic agents are combined with vitamin antagonists.

Cancer Research 12:263, 1952.

Obstetrics

Smoking and Fetal Heart Rate

Maternal smoking causes a discernible increase in the fetal heart rate about one to two minutes after beginning of inhalation. Dr. Günter Doerfel of the University of Leipzig, in studying transplacental diffusion of drugs, tested the effects of nicotine on pregnant women who entirely or only partially gave up smoking during pregnancy. After approximately one hour of relaxation, repeated fetal heart counts were made with a fetoscope fixed to exclude any pressure or other mechanical stimulation of the uterus and fetus. The fetal heart rate was also determined during imitated smoke inhalations to exclude the possibility of the influence of deep respirations. One to two minutes after the mother began to smoke an increase of the fetal heart rate was noticed, reaching a peak of about 10 per minute and starting to decrease slowly about five minutes after smoking was discontinued.

Innere Med. 7:227-229, 1952.

Arthritis

New Drugs for Gout

The anticoagulants heparin and Paritol-C may be remarkably effective for acute gouty arthritis, even after usual therapy fails. In 5 cases, one or the other drug reduced the pain, swelling, and tenderness about 80% within twenty-four hours and induced complete remissions in two to four days. Active rheumatoid arthritis was partially relieved in 5 of 6 cases, and nonspecific arthritis improved in 2. Dr. Gordon W. Howe and associates of the University of Texas and Southern Pacific Hospital, Houston, observed no relation between improvement and the anticoagulant effects. Heparin was given subcutaneously in doses of 200 to 300 mg. every twelve hours, and 3 to 4 mg. of Paritol per kilogram of body weight was injected once or twice daily by vein in 5 or 10% solution.

Am. J. M. Sc. 223:258-261, 1952.

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Endocrinology

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An extremely potent form of corticotropin is obtained by purification with oxycellulose. The compound was utilized by Dr. M. S. Raben and associates of the Ziskind Research Laboratories, New England Center Hospital, and Tufts College, Boston, in treatment of various diseases. The purified hormone is about 150 times as effective as standard corticotropin and has at least 250 times the strength of cortisone in equal weight. An aqueous solution may be injected subcutaneously at intervals of eight hours, or gelatin solution every day or two. Action is also prolonged by suspension in sesame oil.

J.A.M.A. 148:844-845, 1952.

Medical Education

Mississippi's Loan Plan

To relieve the state's rural doctor shortage, Mississippi established a medical education loan program five years ago. As a result, 67 young physicians have entered rural practice and well over 200 students are now enrolled in 22 medical schools in the United States, reports Maria Voskamp of the Mississippi State Medical Education Board, Jackson. With a rural physician-to-population ratio of 1:3,500, Mississippi offers loans to needy medical students who contract to practice a minimum of two years in a rural community of the state. The Education Board approves a loan not exceeding $1,250 a year for four years and considers the student's choice for location of a practice. The loan is discounted one-fifth each year that the new physician spends in the rural community. He may leave after two years, however, by paying off the remaining three-fifths of the loan plus interest. Proponents of the program say that the loans are not designed to change the goal of a student wishing to enter a specialized field of medicine but to encourage those interested in a rural practice. The program has supplied nearly half the doctors most recently added to Mississippi's physician roster.

J. M. Education 27:111-113, 1952.

Psychiatry

Cerebral Arteriosclerosis

Atherosclerosis, consisting of focal intimal sclerosis and lipid infiltration, is no more common in persons with so-called senile psychoses than in apparently healthy persons of the same ages. More than 200 supposedly arteriosclerotic patients in a mental hospital were studied by Dr. Alexander Simon and associates of the University of California, San Francisco and Berkeley, and the Langley Porter Clinic, San Francisco. Serum lipoproteins of the S_f 10-20 class, which reflect atheroma formation, were no more elevated in the psychotic group than in a presumably healthy group of similar age. Examination of the brain post mortem in 21 cases revealed atherosclerotic cerebral changes in only 5, purely senile effects such as diffuse neuronal degeneration in 8, and senile with arteriolosclerotic lesions in 8.

Am. J. Psychiat. 108:663-668, 1952.

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1. Robinson, F. H., Jr., and Farr, L. E., Ann. Int. Med., 14:42 (1940)
2. Bickers, W. and Woods, M., Texas Rep. Biol. Med., 9:406 (1951)
3. Vainder, M., Indust. Med. & Surg., 20:199 (1951)
4. Bickers, W. and Woods, M., New England J. Med., 245:453 (1951)

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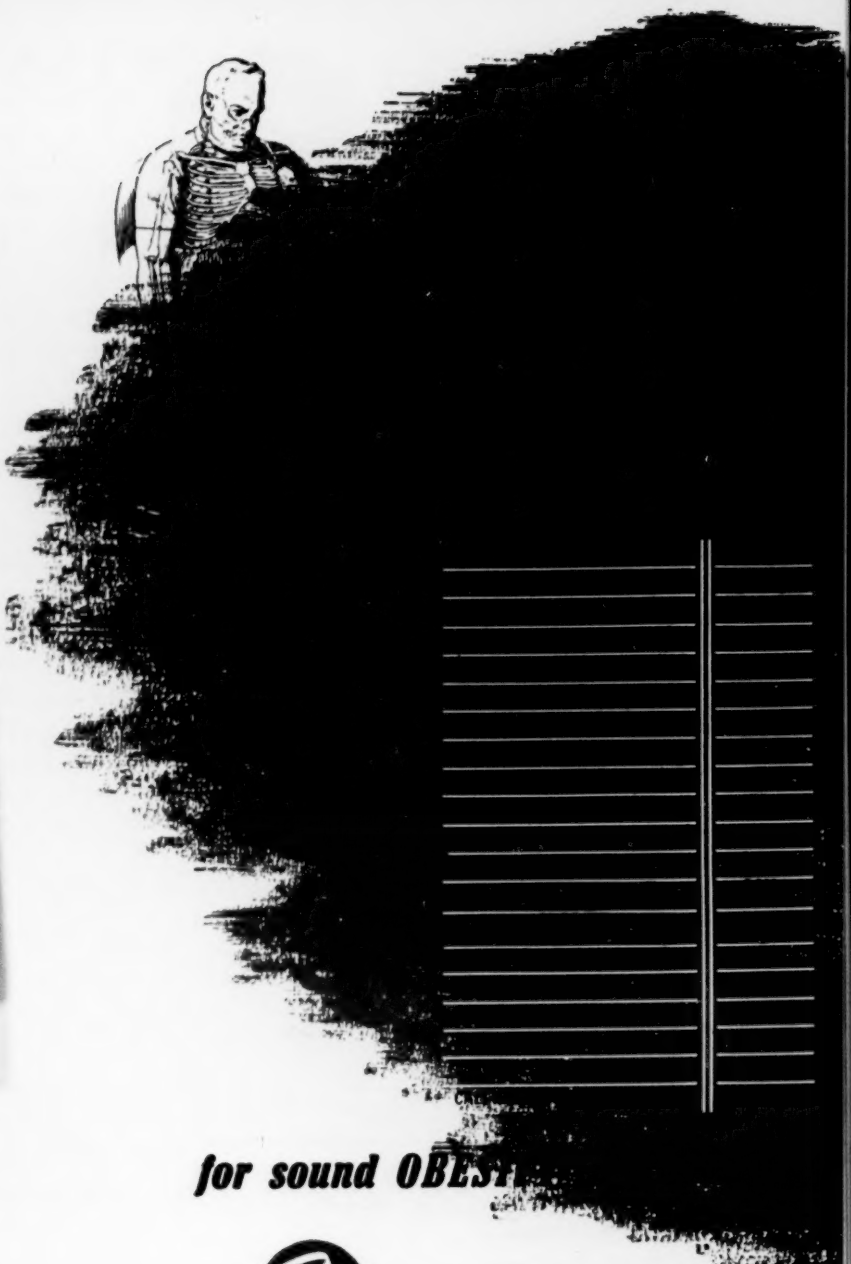

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1. Spies, T. D.; Stone, R. E.; Garcia-Lopez G.; Lopez-Toca, R., and Reboredo, A.: Therapeutic Indications for Vitamins in Mixtures. Postgrad. Med., *10*:269 (Oct.) 1951, p. 281.

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Cardiology

Catheter-induced Infarction

When a catheter is wedged into a branch of the pulmonary artery for measurement of capillary pressure, infarction and thrombosis may occur. Pulmonary infarction was found in lungs of 19 patients with severe mitral stenosis or congestive heart failure a few hours to several days after the procedure. Chemical sterilization of the catheter in mercurioxycyanide was the crucial factor, conclude Dr. Hector E. J. Houssay and associates of Peter Bent Brigham Hospital and Harvard University, Boston. Although more than half of individuals with stenosis had postoperative infarction in six months, autoclaved catheters produced no thrombosis in 20 consecutive cases.

Proc. Soc. Exper. Biol. & Med. 79:444-446, 1952.

Radiology

Grid Therapy for Cancer

Patients with advanced, incurable cancers are afforded some palliation of symptoms and prolongation of life by roentgen therapy through lead-rubber grids. Incurability of the lesion should be definitely established through consultation and biopsy before such therapy is instituted, emphasizes Dr. William Harris of Mount Sinai Hospital, New York City. Dosage should not exceed 18,000 r to one portal and should be protracted over a period of thirty-five to forty days. Grids with holes 1 to 1.5 cm. in diameter are the most satisfactory. The open areas should comprise 40 to 60% of the total portal. Alternate exposure of anterior, posterior, and, if possible, lateral portals reduces injury to normal tissues. Therapy of this type may have a depth dosage advantage over the conventional open portal method. Skin healing is complete in three to four weeks. During a fifteen-month period, 127 patients completed the therapy; best results were obtained in cancer of the lung and bladder.

Radiology 58:343-350, 1952.

Oncology

Cerebrospinal Fluid Study

Papanicolaou staining of aspirated cerebrospinal fluid provides a diagnostic aid in determining the type of exfoliative lesions in the central nervous system. Any mass situated on a nervous channel may liberate cells into the cerebrospinal fluid. Desquamated malignant cells are capable of producing metastases on distant meninges. Needle aspiration and exploration is a common procedure for determining the presence of tumors, inflammation, hemorrhage, or neoplastic, degenerative, or parasitic cyst formation. Dr. William R. Platt of the University of Pennsylvania, Philadelphia, uses the Papanicolaou technic in examining fluid specimens aspirated from ventricular, cisternal, spinal, or cerebral cysts. The cellular elements may then be examined for malignancy or other pathology. This technic supplements the findings of the roentgenologist, neurologist, and neurosurgeon.

Cancer Research 12:288, 1952.

Treatment

Myocardial Infarction Shock

Vasopressor therapy with nor-epinephrine may assist recovery from profound shock following acute myocardial infarction. Drs. Albert J. Miller and Lyle A. Baker employed *l*-arterenol in 7 cases at the Veterans Administration Hospital, Hines, Ill. Blood pressure was significantly elevated in 4 cases, 1 patient survived, and no harmful effect upon cardiac rhythm or congestive failure was observed. Solutions containing 1 mg. of base in 1,000 cc. of 0.9% sodium chloride or 5% dextrose in water were given by intravenous drip at rates depending on blood pressure response.

Arch. Int. Med. 89:591-599, 1952.

Endocrinology

Psychoses in Cushing's Syndrome

Behavior disturbances may be primary manifestations of Cushing's syndrome. The most constant histologic changes seen are pituitary, but the abnormal physiology may be essentially adrenal hormone dysfunction. Dr. Albert M. Starr of Yale University, New Haven, Conn., found mental and emotional aberrations in 60% of 53 patients with the disease. The adiposity is believed to result from increased 11-dehydrocorticosterone; the muscle weakness, periodic paralysis, hypertension, edema, cardiac dilatation, osteoporosis, and thin skin with striae, from excess of the desoxycorticosterone group; and hirsutism, amenorrhea, acne, and erythrocytosis, from augmented adrenal androgens. Development of Cushing's disease and of mental disturbances after administration of ACTH and cortisone suggests a chemical basis for some psychoses. ACTH is probably not the responsible factor, since euphoria, the most constant change this hormone induces, is rare with Cushing's syndrome.

J. Clin. Endocrinol. 12:502-505, 1952.

Obstetrics

Intravenous Iron in Pregnancy

Saccharated iron oxide given intravenously induces immediate erythropoiesis in the pregnant woman, whose intestinal absorption of iron is ordinarily low. Parenteral administration has been criticized because of the possible harmful effects of overdosage. Drs. D. B. Nicholson and N. S. Assali of the University of Cincinnati and the Cincinnati General Hospital recognize that iron dosage should be calculated, considering the storage deficit as well as hematologic deficit. In most of the cases, 200 mg. of saccharated iron oxide in 2% solution is given directly into the vein, usually three times a week. Parenteral iron may be used for pregnant women with microcytic anemia first discovered late in pregnancy and for patients with anemia resulting from acute hemorrhage, but only when oral therapy is contraindicated. Reactions occurred in 12 of 203 injections; none necessitated discontinuance of therapy.

Surg., Gynec. & Obst. 94:513-518, 1952.

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1. Waters, E. G., and Wager, H. P.: Amer. J. Obstet. & Gyn. 60:885, 1950.

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1. Schwartz, E.: Ann. Allergy 7:770, 1949.

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Surg., Gynec. & Obst. 94:543-549, 1952.

Radiology

Fetal Radiation Hazards

Embryos of a variety of animals, and undoubtedly human embryos also, are highly susceptible to the induction of malformations by radiation. Particular abnormalities are produced preferentially at definite stages of fetal development. For example, 40% of mice irradiated nine and a half days postconception had spina bifida at birth, but the offspring of mice irradiated at any other time did not have this condition. Critical periods in mice correspond to the second to sixth week of gestation in women, when pregnancy may still be unsuspected. Irradiation of mice at later stages produces subtle effects which in human beings may be as harmful as gross abnormalities. Doses as low as 25 r are capable of producing changes at critical times in human embryos. Abortion or death does not always occur after irradiation at levels high enough to induce developmental abnormalities. Drs. Liane Brauch Russell and W. L. Russell of the Oak Ridge National Laboratory, Oak Ridge, Tenn., recommend strict avoidance of irradiation of patients known to be pregnant. To prevent radiation during unknown pregnancy, gastrointestinal examinations of women of child-bearing age, including diagnostic fluoroscopic studies, should be done during the first two weeks after menstruation. If nonpelvic radiation is required, the conceptus should be shielded.

Radiology 58:369-377, 1952.

Pharmacology

Relaxant Improved

The practical usefulness of mephenesin in relaxing overactive or spastic muscles is limited by the drug's short duration of action. Frequent large doses are necessary to maintain a level of effectiveness. As good or better results for longer periods are obtained with the carbamate of mephenesin, 3-o-toloxy, 2-hydroxy-propyl carbamate, known as MC 2303. Drs. Peter E. Dresel and Irwin H. Slater of the University of Rochester, N. Y., find that to paralyze mice oral doses of 3.4 millimols of carbamate of mephenesin per kilogram are needed, in contrast to 4.17 millimols required with mephenesin. Lethal doses are 7.67 and 10.53 millimols, respectively. The carbamate also provides greater and more lasting protection against the extensor phase of electric shock.

Proc. Soc. Exper. Biol. & Med. 79:286-287, 1952.

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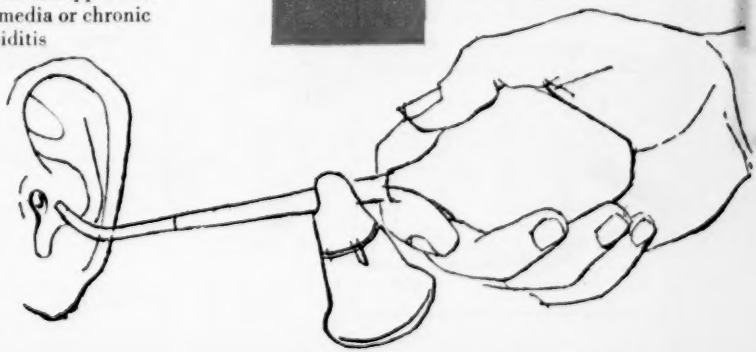

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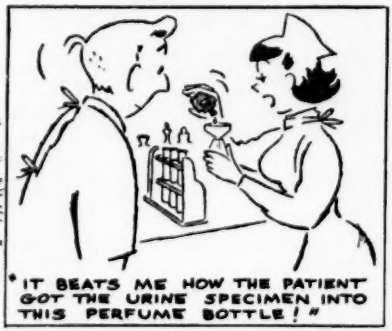

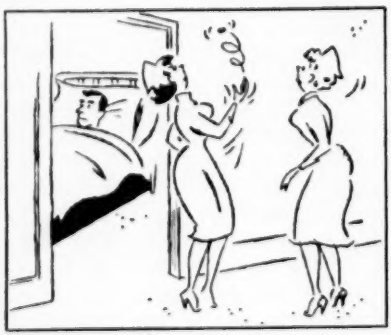

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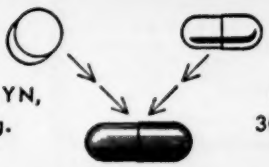

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'Perazil' gives practical protection from the effects of allergens. Observers have agreed that: "The percentage and severity of side reactions was very low. Due to the longer duration of action of 'Perazil', less frequent administration of tablets was necessary."[1]

'Perazil' was developed by The Wellcome Research Laboratories in the search for an ideal antihistaminic. Its chemical composition is unique. One 50 mg. tablet acts for 12 to 24 hours as a rule in relieving allergies.

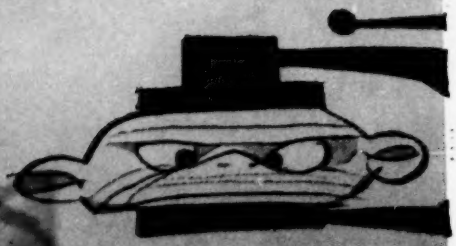
'Perazil' Cream may be used for topical antihistaminic and antipruritic effect.

'Perazil'® brand

Chlorcyclizine Hydrochloride, 50 mg., Compressed, scored . . . also 'PERAZIL'® *brand Chlorcyclizine Hydrochloride* CREAM *1%*

1. Cullick, L., and Ogden, H. D.: J. So. Med. Assn., 43:643, 1950

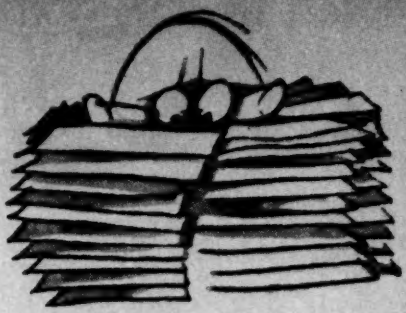
Burroughs Wellcome & Co. (U.S.A.) Inc., *Tuckahoe 7, N. Y.*



pressure

When

diet



work

worry

emotional disturbances

pressure, diet, work, worry,

emotional disturbances, visceroneurosis

cause Nervous Indigestion . . .

BENTYL

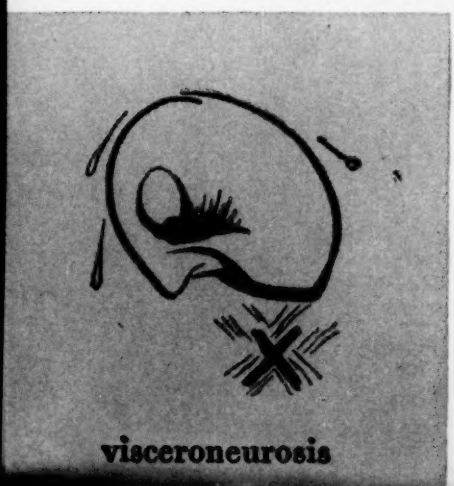
offers effective, comfortable, sustained relief from pain, cramps, general discomfort due to functional gastrointestinal spasm. In clinical studies[1, 2, 3] BENTYL gave gratifying to complete relief in 308 of 338 cases, yet was ". . . virtually free from undesirable side effects."[3]

EACH CAPSULE OR TEASPOONFUL SYRUP CONTAINS:

BENTYL.....10 mg.
For safe, double-spasmolysis

BENTYL.....10 mg.
with **PHENOBARBITAL...15 mg.**
When synergistic sedation is desired

Dosage—ADULTS: 2 capsules or 2 teaspoonfuls syrup 3 times daily, before or after meals. If necessary, repeat dose at bedtime. IN INFANT COLIC: ½ to 1 teaspoonful syrup 3 times daily before feeding.[4]



visceroneurosis

Merrell
1828

New York • CINCINNATI • Toronto

1. Hock, C. W.: J. Med. Assn. Ga. 40:22, 1951 • 2. Hufford, A. R.: J. Mich. St. Med. Soc. 49:1308, 1950 • 3. Chamberlin, D. T.: Gastroenterology 17:224, 1951 • 4. Pakula, S. F.: Postgrad. Med. 11:123, 1952—*Trade-mark "Bentyl" Hydrochloride*

PATIENTS ... *I Have Met*

The editors will pay $1 for each story published. No contributions will be returned. Send your experiences to the Patients I Have Met Editor, MODERN MEDICINE, 84 South Tenth St., Minneapolis 3, Minn.

Clarification

I had instructed my new secretary to make a note that the patient was shot in the lumbar region. When the report was typed and handed back to me I called her in.

"What's this?" I demanded, pointing to her notation which read, "shot in the woods."

"Oh, that," she replied. "I thought 'woods' would be clearer than the 'lumber region.' "—D.W.

Looking Ahead

The office nurse announced that Mr. Williams, an elderly cardiac patient, was in the waiting room.

"His morale is pretty low," I mused. "I wish I could prescribe something to stimulate his interest in living."

"I wouldn't worry, if I were you," said my nurse.

"Why do you say that?" I asked.

"Well, I see that he has just started an eight-installment serial story in a monthly magazine."—A.S.

"Maybe I should have told you, I can't read."


two-fisted
E

Have You a Nellie Nifty in Your Office?

$2 will be paid for each cartoon idea suitable for the "Nellie Nifty, R. N." (p. 154). Send your suggestion to The Cartoon Editor, Modern Medicine, 84 S. 10th St., Minneapolis 3, Minnesota.

Not on Your Life

Shortly after I set myself up as a psychiatrist, a man came to me about his wife.

"We've been married for thirty years," he said, "but lately she's been acting queer."

"In what way?" I asked.

"She keeps goats in the living room. They smell terrible. And honestly, Doctor, I don't think I can stand it much longer."

"Why don't you open up the windows and doors?" I suggested.

"What?" thundered the husband, "and let all my pigeons fly away?"—**T.F.J.**

Who Makes It?

While I was instructing one of my cardiac patients as to his diet, his wife listened intently, nodding her head as each food was mentioned.

"Now I want you to stick to this diet," I told my patient. "Eat these foods and eliminate salt."

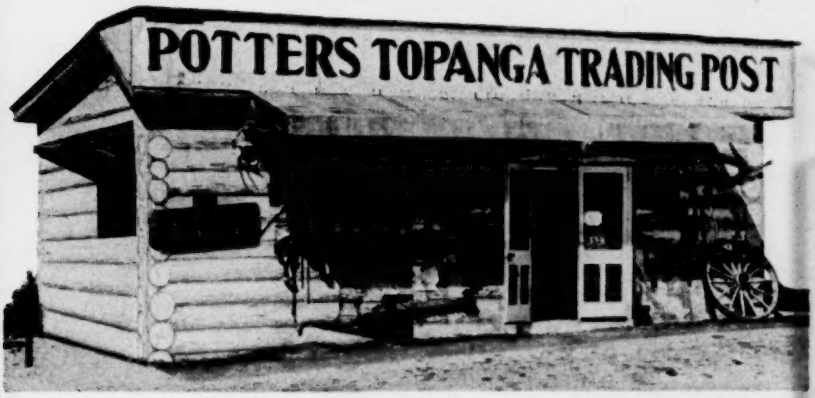
The next time the man came into my office his wife was with him.

"Doctor," she complained, "I've looked everywhere trying to find that salt you told Joe to use but I simply can't find it anywhere.

"Salt!" I exclaimed, "What salt?"

"Why," replied the woman in some surprise, "that Eliminate Salt you wanted him to be sure and have."—**E.V.P.**

How this Small Country Store Helps Protect Your Recommendation of Carnation



YOU'LL FIND this store a few miles up the coast from Santa Monica, California. And if you were to step inside, you'd see that it is well-stocked with Carnation... the *only* evaporated milk on the shelves

This could be any country store. The point is that no matter how small, it's almost certain to carry Carnation... often *exclusively*. So when you specify Carnation for an infant's formula, you can be sure that the mother will be able to find it wherever she travels.

DOUBLE-RICH in the food values of whole milk
FORTIFIED with 400 units of vitamin D per pint
HEAT-REFINED for easier digestibility
STERILIZED in the sealed can for complete safety

Only Carnation Gives Your Recommendation This 5-WAY PROTECTION

1. Carnation is constantly improving the raw milk supply. Cattle from champion Carnation bloodlines are shipped to dairy farmers all over the country to improve the milk supplied to Carnation plants.

2. Carnation accepts only high quality milk. Rejects milk if it fails to meet its standards.

3. Carnation processes ALL the milk sold under the Carnation label. From cow to can Carnation Milk is processed—*with prescription accuracy*—in Carnation's *own* plants under its *own* supervision.

4. Carnation quality control continues even AFTER the milk leaves the plant through frequent inspection of dealers' stocks.

5. Carnation Milk is available in virtually every grocery store in every town throughout America.

"The Milk Every Doctor Knows" "from Contented Cows"

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it's the *healing* influence

of **cod liver oil**

that makes the great difference in

DESITIN®

hemorrhoidal

SUPPOSITORIES

the hemorrhoidal patient may sit, move and walk in greater comfort as Desitin Hemorrhoidal Suppositories with Cod Liver Oil act promptly to...

- **relieve pain and itching**
- **minimize bleeding**
- **reduce congestion**
- **guard against trauma**
- **promote healing** by virtue of their contents of high grade crude Norwegian cod liver oil, rich in vitamins A and D and unsaturated fatty acids (in proper ratio for maximum efficacy).

Prescribe Desitin Hemorrhoidal Suppositories in hemorrhoids (non-surgical), pruritus ani, uncomplicated cryptitis, papillitis, and proctitis.

Composition: crude Norwegian cod liver oil, lanolin, zinc oxide, bismuth subgallate, balsam peru, cocoa butter base. No narcotic or anesthetic drugs to mask rectal disease. Boxes of 12 foil-wrapped suppositories.

Send for **samples**

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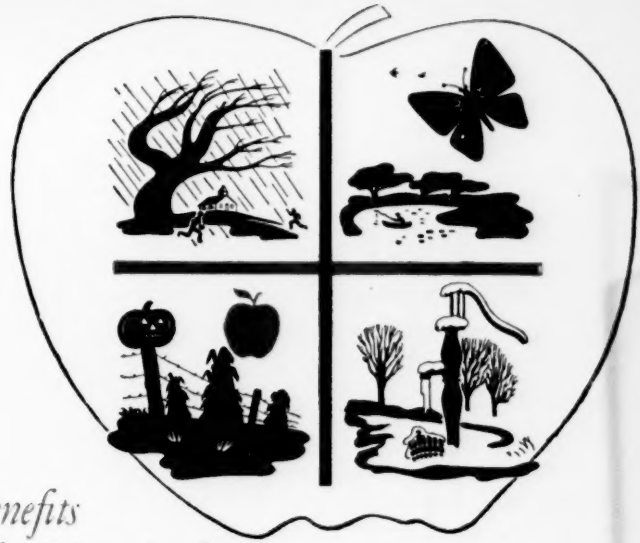

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APPELLA® APPLE POWDER

Therapeutic and Prophylactic in Diarrhea

Appella Apple Powder — for efficient treatment of diarrhea — is neither a seasonal medication nor exclusively a children's remedy. It can be administered to all members of the family, at any time of the year. It provides the valuable properties of good, ripe apples throughout the year.

The logic and value of a high caloric diet, including Appella, in infant diarrhea, are emphasized by O'Keefe[1]:

> "The infant is losing a large amount of essential food stuffs owing to the rapid passage of material through the intestinal tract. A high calory diet compensates for this loss . . . The apple powder is an important component of this regime, since it slows the intestinal rate and converts the watery irritating stools into comparatively normal dejections."

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is a simple, wholesome, convenient treatment for diarrhea in infants, children, adults. Appella is a blend of several selected varieties of apples chosen for their *high content of pectin and uronic acid*.[2] Appella provides 10 calories per teaspoonful, 96 per ounce.

SUPPLIED: 7 oz. jars for prescription use; 18 oz. jars for hospital use.

Winthrop-Stearns Inc.
New York 18, N. Y. Windsor, Ont.

Appella, trademark reg. U. S. & Canada

1. O'Keefe, Edward S.: Rhode Island Med. Jour., 33:127, Mar., 1950.
2. Council on Foods, American Medical Association: Accepted Foods and Their Nutritional Significance. Chicago, American Medical Association, 1939, p. 208.

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